APPLICATION FOR LAND USE CONSISTENCY DETERMINATION
San Mateo County Airport Land Use Commission
C/CAG ALUC

APPLICANT INFORMATION		
Agency: City of South San Francisco		
Project Name: El Camino Mixed Use Project - 180 El Camino Real		
Address: 180 El Camino Real	APN: 014-183-110	
City: South San Francisco	State: CA	ZIP Code: 94080
Staff Contact: Billy Gross, Principal Planner	Phone: 650-877-8535	Email: billy.gross@ssf.net

PROJECT DESCRIPTION

Remove existing vacant buildings and subdivide the site into three parcels - B, C, and D. Project development includes a 7-story residential building with covered parking and courtyard of approximately 83,000 square feet on Lot B; 3, 6-story R&D buildings of approximately 720,000 plus 30,000 square feet of amenity space on Lot C; and a 7-story parking garage on Lot D. An alternative site plan would be fully R&D, replacing the residential building with a 6-story R&D building, reducing the other R&D buildings to 5 stories each, and adding 2 levels to the garage. Lot A is the site of a separate, approved project currently in the construction drawing phase, and is not a part of this project.

REQUIRED PROJECT INFORMATION PLEASE SEE ENCLOSED SUPPLEMENTAL MATERIALS AND ATTACHMENTS

For General Plan, Specific Plan or Zoning Amendments and Development Projects:

A copy of the relevant amended sections, maps, etc., together with a detailed description of the proposed changes, sufficient to provide the following:

1. Adequate information to establish the relationship of the project to the three areas of Airport Land Use compatibility concern (ex. a summary of the planning documents and/or project development materials describing how ALUCP compatibility issues are addressed):

   a) Noise: Location of project/plan area in relation to the noise contours identified in the applicable ALUCP.

      - Identify any relevant citations/discussion included in the project/plan addressing compliance with ALUCP noise policies.

   b) Safety: Location of project/plan area in relation to the safety zones identified in the applicable ALUCP.

      - Include any relevant citations/discussion included in the project/plan addressing compliance with ALUCP safety policies.

   c) Airspace Protection:

      - Include relevant citations/discussion of allowable heights in relation to the protected airspace/proximity to airport, as well as addressment of any land uses or design features that may cause visual, electronic, navigational, or wildlife hazards, particularly bird strike hazards.

- If applicable, identify how property owners are advised of the need to submit Form 7460-1, *Notice of Proposed /Construction or Alteration* with the FAA.

2. Real Estate Disclosure requirements related to airport proximity

3. Any related environmental documentation (electronic copy preferred)

4. Other documentation as may be required (ex. related staff reports, etc.)

Additional information For Development Projects:

1. 25 sets of scaled plans, no larger than 11" x 17"
2. Latitude and longitude of development site
3. Building heights relative to mean sea level (MSL)

ALUCP Plans can be accessed at http://ccag.ca.gov/plansreportslibrary/airport-land-use/

Please contact C/CAG staff at 650 599-1467 with any questions.

For C/CAG Staff Use Only
Date Application Received
Date Application Deemed Complete
Tentative Hearing Dates:
- ***Airport Land Use Committee***
- ***C/CAG ALUC***

C/CAG Application for Land Use Consistency Determination – Supplemental Information

AGENCY NAME: City of South San Francisco
PROJECT NAME: El Camino Real Mixed Use Project - 180 El Camino Real
APN: Portion of 014-183-110
GENERAL PLAN: El Camino Real Mixed Use
ZONING: El Camino Real Mixed Use (ECRMX)

PROPERTY AND PROJECT DESCRIPTION

On January 31, 2022, Steelwave submitted an application for a mixed-use development on the 11.21-acre, irregularly shaped property at 180-188 El Camino Real and 415 Spruce Avenue (the "Project Site"). The Project Site is bounded by El Camino Real to the west, South Spruce Avenue to the north, and Huntington Avenue to the east, and is currently the site of a vacant, approximately 140,000 square foot former shopping center. Remaining areas of the Project Site consist of paved parking areas, and 179 trees exist on-site.

Surrounding existing land uses include a See's Candies warehouse and single-family residences to the north, across South Spruce Avenue; two office buildings to the northeast; commercial and light industrial uses to the east, across Huntington Avenue; commercial businesses to the south; and commercial businesses and single-family residences to the west, across El Camino Real. The project site is located within the San Francisco Airport Land Use Compatibility Plan Area

The Project would consist of the demolition of the existing on-site building and subsequent redevelopment of the Project Site into a life sciences campus. Two Site Plans are being considered for the project. The Preferred Site Plan ("proposed project") would include three, six-story research and development (R&D) buildings, a seven-story parking structure, and a seven-story multi-family residential building. A new interior street would bisect the site, and the proposed project would include pedestrian and bike-friendly connections between all proposed buildings.

The Alternative Site Plan would replace the multi-family residential building with a six-story R&D building, resulting in a full R&D/life sciences project. In addition, under the Alternative Site Plan, the parking structure would include two additional levels of parking, and the other R&D buildings would be reduced to five stories.

The proposed project would require approval of a Vesting Tentative Parcel Map, Conditional Use Permit, Transportation Demand Management Program, Design Review and California Environmental Quality Act ("CEQA") clearance.

Please see the enclosed **Attachment 1 – 180 ECR Project Description** for further Project details, including site plans and project renderings.

As discussed in more detail below and in **Attachment 3 - Airspace Analysis**, the Project is ***consistent*** with the safety and airspace protection policies of the Airport Land Use Compatibility Plan (ALUCP) for San Francisco International Airport (SFO). And, as discussed in more detail below and in **Attachment 2 - Environmental Noise Analysis**, recent noise data contained in 2021 3rd Quarter contours indicates that the Property is outside of the 65 dB contour for airport noise. The currently adopted Exhibit IV-6 of the ALUCP (adopted in 2012 based on 2011 data), shows the site within or directly on the CNEL 70 dB contour, and the currently adopted FAA Part 150 2019 Noise Exposure Map (published in 2015 based on 2014 data), shows the Property in the CNEL 65-70 dB contour. However, using the most current data based on noise monitoring as noted above, the Project Site is fully beyond the CNEL dB contour. Further, the Project can achieve the State Building Code standard of CNEL 45 dB indoors with the use of commercially-available windows and conventional wood-frame construction. Therefore, all Project uses including the residential use is ***compatible*** with the land use and noise policies of the ALUCP.

POLICY ANALYSIS

As proposed, the project would be consistent with the ECRMX zoning district land use and development standards, and is consistent with the General Plan Land Use Designation of El Camino Real Mixed Use (ECRMU), which is intended to accommodate high-intensity active uses and mixed-use development in the South El Camino Real area. Retail and department stores; eating and drinking establishments; hotels; commercial recreation; financial, business, and personal services; residential; educational and social services; and office uses are permitted in this district. The mixed-use project is consistent with and implements many of the City's General Plan policies, focusing on high-quality transit-oriented development, improving the pedestrian environment and providing a wide range of housing options:

Land Use Guiding Policies:

- 2-G-6 Maximize opportunities for residential development, including through infill and redevelopment, without impacting existing neighborhoods or creating conflicts with industrial operations.
- 2-G-7: Encourage mixed-use residential, retail, and office development in centers where they would support transit, in locations where they would provide increased access to neighborhoods that currently lack such facilities, and in corridors where such developments can help to foster identity and vitality.
- 2-G-8: Provide incentives to maximize community orientation of new development, and to promote alternative transportation modes.

El Camino Real Sub-Area Policies

- 3.4-G-7: Develop the South El Camino area as a vibrant corridor with a variety of residential and non-residential uses to foster a walkable and pedestrian-scaled environment.
- 3.4-1-24: Promote visually intricate development, using horizontal and vertical building articulation that engages pedestrians; and diversity in color, materials, scale, texture, and building volumes.

- 3.4-1-25: Maintain an open, walkable environment throughout the area by providing space at the ground level for enhanced pedestrian connections, either through open promenades or internal semi-public pathways.
- 3.4-1-26: Limit curb cuts along pedestrian routes, so that pedestrian circulation and safety are not compromised by vehicle access to parking.
- 3.4-1-30: Require development be oriented to El Camino Real, with the ground floor of buildings designed so that pedestrians can see shops, restaurants, and activities as they walk along the sidewalk. The ground floor of buildings along Huntington, Noor, and South Spruce avenues should also be designed to provide visual interest and promote pedestrian comfort.

Transportation

- 4.2-G-10 Make efficient use of existing transportation facilities and, through the arrangement of land uses, improved alternate modes, and enhanced integration of various transportation systems serving South San Francisco, strive to reduce the total vehicle-miles traveled.

Housing Element

- Goal 1: Promote the provision of housing by both the private and public sectors for all income groups in the community.

- Policy 1-5: The City shall encourage a mix of residential, commercial, and office uses in the areas designated as Planned Development Areas (PDAs), properties located in the South San Francisco BART Transit Village Zoning District and in proximity to BART and Caltrain stations and along El Camino Real, consistent with the Grand Boulevard Initiative.

Further, the inclusion of residential development as part of the Project is consistent with State housing law mandates and will provide 184 needed units of housing in an appropriate infill, transit-oriented redevelopment location. The California Legislature has found and declared that a lack of housing "is a critical problem that threatens the economic, environmental, and social quality of life in California," and that "[t]he excessive cost of the state's housing supply is partially caused by activities and policies of many local governments that limit the approval of housing, increase the cost of land for housing, and require that high fees and exactions be paid by producers of housing." Approval of the Project will help efforts to combat the State's housing crisis.

Finally, the project is consistent with Plan Bay Area 2050 (or PBA), the Bay Area's long-range Regional Transportation Plan and Sustainable Communities Strategy. PBA integrates land use and transportation strategies to achieve state and regional emissions reduction targets pursuant to SB 375. PBA has been designed to support a growing economy, provide more housing and transportation choices, and reduce pollution caused by transportation by clustering areas of more intense development near transportation. The Project is located in a Priority Development Area (PDA) and a Transit Priority Area (TPA) as designated by Plan Bay Area 2050, and is therefore an appropriate location for dense development (including housing) consistent with long-range,

regional planning goals. As discussed below under CEQA compliance, we note that PBA contemplates additional density in appropriate locations near airports, and the Project is able to ensure interior noise levels are less than 45 dB.

DISCUSSION OF RELATIONSHIP TO AIRPORT LAND USE COMPATIBILITY

Noise

ALUCP Exhibit IV-6 "Noise Compatibility Zones – Detail" shows the Project Site within or directly on the border of the CNEL 70dB contour. According to the ALUCP (published in 2012 based on 2011 data) Table IV-1, Noise and Land Use Compatibility Criteria, multi-family residential land uses are typically deemed "Not Compatible" within this zone, but are considered conditionally compatible in areas exposed to noise above CNEL 70 dB if the proposed use is on a lot of record zoned exclusively for residential use as of the effective date of the ALUCP. The currently adopted FAA Part 150 Noise Exposure Map (FAA Part 150 Map), published in 2015 based on 2014 data, shows the Project Site in the CNEL 65-70 dB contour.

Attachment 2 - Environmental Noise Analysis has been conducted for the Project. As discussed in Attachment 2, SFO noise monitoring data from 2017 to the present indicate that the project site is outside the 65 dB CNEL. While the Project is not consistent with the ALUCP noise contours published in 2012, this much more recent site-specific data shows that the airport noise patterns are changing over time, and that the Project Site is less impacted by noise than at the time the ALUCP was adopted. Attachment 2 also confirms that the Project interiors can be reduced to less than 45 dB, consistent with the ALUCP noise policy and the City's General Plan policies.

CNEL Range	Land Use
Less than 65 dB	Land use and related structures compatible without restrictions.
65 to 70 dB	Land use and related structures are permitted, provided that sound insulation is provided to reduce interior noise levels from exterior sources to CNEL 45 dB or lower and that an avigation easement is granted to the City and County of San Francisco as operator of SFO.
70 dB to 75 dB	Land use and related structures are not compatible. However, use is conditionally compatible only on an existing lot of record zoned only for residential use as of the effective date of the ALUCP. Use must be sound-insulated to achieve an indoor noise level of CNEL 45 dB or less from exterior sources.
Over 75 dB	Land use and related structures are not compatible

The Project is compatible without restrictions, but nonetheless will be required to comply with requirements to ensure Project interior noise can be reduced to less than 45 dB.

Safety

As shown in **Attachment 3 - Airspace Analysis**, a portion of the Project Site is within Safety Zone 4, and the majority of the Project's R&D use (which as noted above would consist of Biosafety

Level 1 and 2) is proposed within this area. The ALUCP does not consider Biosafety Level 1 uses hazardous (SP-3 subsection D), and therefore the Project's Biosafety Level 1 uses would be permitted without restriction or further analysis. With regard to Biosafety Level 2 uses, ALUCP Table IV-2 notes they are not an "incompatible" use in Safety Zone 4, but are to be "avoided" unless the City finds that the use is safe and that "no feasible alternative is available." (See ALUCP Table IV-2 Safety Compatibility Criteria, page IV-31 and SP-3 Hazardous Uses, page IV-33).

First, the City concludes that the use is safe.

- The Biosafety Levels used in the SFO ALUCP are derived from guidance from the Center for Disease Control, Biosafety in Microbiological and Biomedical Laboratories (SFO ALUP at IV-33), which also explains that Level 2 involves agents "that are already present in the community" and that "[w]ith good microbiological techniques, these agents can be used safely."[1] Because Level 2 does not authorize respiratory or aerosolized agents, some cities have determined that it does not present a materially greater risk to public safety than Level 1 activities.[2]

- As demonstrated in **Attachment 3- Airspace Analysis** (and Attachment A thereto, which contains a letter by laboratory expert Dr. Kinkead Reiling), the risk levels of Biosafety Level 2 facilities are low, and are generally on-par with those of Biosafety Level 1 facilities. Dr. Reiling explains that "safety precautions in a Biosafety Level 2 facility consist of good laboratory practices and training, restricted lab access, decontamination practices, and protective measures such as the use of biosafety cabinets, gloves, lab coat, and safety glasses to allow the handling of generally treatable human diseases; examples could include Hepatitis A, B, and C, and Salmonella. Numerous laboratories throughout the Bay Area and country safely operate Biosafety Level 2 facilities for R&D purposes." Dr. Reiling further explains that "the low-risk level to the community and public from a BSL-1 or BSL-2 research laboratory are not widely different, in that the organisms handled in either of them would not cause harm above organisms already found in the community, are generally treatable, and the robust facility, engineering, biosafety practices and security control measures necessary to effectively contain them are not highly susceptible to human error. Illness and infections spreading into communities surrounding a BSL-1 or BSL-2 lab are generally unheard of because research on high-risk agents and pathogens can only be performed in BSL-3 or 4 laboratories. While serving the health and well-being of our community through research to prevent disease, these labs do not pose high levels of risk by adhering to all relevant biosecurity and safety standards required by law." As concluded on page 20 of **Attachment 3 - Airspace Analysis**, "the difference between BSL-1 and BSL-2 are minimal, and the restrictions in Safety Compatibility Zone 4 at SFO should not restrict the use of BLS-2."

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[1] Biosafety In The Laboratory: Prudent Practices for the Handling and Disposal of Infectious Materials, *available at* https://www.ncbi.nlm.nih.gov/books/NBK218631/.

[2] City of Millbrae, City Council Agenda Report, Item 11 (July 27, 2021) at 26, *available at* https://portal.laserfiche.com/Portal/DocView.aspx?id=14209&repo=r-c2783ec8.

- Finally, the project will go through environmental analysis as part of the entitlement process in regards to hazardous materials and any other environmental concerns and could be conditioned to comply with CDC and NIH guidance.

- All of the above supports the City's finding that a Biosafety Level 2 could be considered "non-hazardous" under current conditions, despite the 2012 ALUCP officially restricting this definition to Biosafety Level 1 facilities.

Second, the City finds there is no feasible alternative for the Project Site.

- Decades-long trends specific to the Bay Area, as relayed by Dr. Reiling, indicate that the majority of users will blend Biosafety Levels 1 and 2 in their facilities, and typical Bay Area users *need* the high quality laboratory space that Biosafety Level 2 allows, making it too difficult for a landowner to compete for laboratory tenants if a facility is restricted to Biosafety Level 1.

- This is supported by a 2005 taskforce report for San Francisco, which found that essentially all hospitals and medical and veterinary schools, dental offices and medical laboratories would fall into the BSL 2 category.[3]

- Finally, the applicant Steelwave has represented that in order to make the Project commercially feasible, Biosafety Level 2 is needed.

Airspace Protection

Per the ALUCP, airspace protection policies are established with a two-fold purpose:

1. To protect the public health, safety, and welfare by minimizing the public's exposure to potential safety hazards that could be created through the construction of tall structures.

2. To protect the public interest in providing for the orderly development of SFO by ensuring that new development in the Airport environs avoids compromising the airspace in the Airport vicinity. This avoids the degradation in the safety, utility, efficiency, and air service capability of the Airport that could be caused by the attendant need to raise visibility minimums, increase minimum rates of climb, or cancel, restrict, or redesign flight procedures.

As proposed, the Project is ***consistent*** with the ALUCP Airspace Protection policies, described in detail below, but will require FAA notification:

CFR Part 77 Analysis

[3] *See* San Francisco biosciences Task Force Report to the San Francisco Board of Supervisors and Planning Commission (Feb. 15, 2005) at 8, *available at* https://sfgov.org/sfc/biosciences/Modules/FinalBIOSCIENCE021505__3119.pdf?documentid=1824.

As indicated on page 4 of **Attachment 3 - Airspace Analysis**, an analysis of CFR Part 77 Notice Requirements was conducted and it was determined that the Project would require formal submission to the FAA. The majority of the Project Site is located within the 163' Above Mean Sea Level (AMSL) Horizontal Surface for SFO, and a small portion of the Project's proposed residential building is located within the Conical Surface for SFO. This Conical Surface has an increasing slope of 20:1. A penetration to Obstruction Standards does not mean the structure will have an adverse impact to operations, rather the airport's specific procedures, such as Instrument Approach/Departure and VFR Traffic Pattern procedures, must be studied to determine if the specific procedures will be impacted. The FAA may require an obstruction exceeding Obstruction Standards to be lighted in accordance with FAA Advisory Circular 70/7460-1L to make it more conspicuous to airmen.

Terminal Instrument Procedures

As explained on pages 5-14 of **Attachment 3 - Airspace Analysis**, an analysis of the Terminal Instrument Procedures (TERPS) criteria was completed to determine the maximum elevation to which a structure could be erected without impacting SFO instrument approach and departure procedures.

As concluded on page 9 of the Airspace Analysis, the maximum height over the Project Site, without affecting Instrument Approach Procedure to SFO, is approximately 385' AMSL to the SE and approximately 415' AMSL to the NW. The Project would be far below this height and would not affect Instrument Approach Procedure.

As concluded on page 10 of the Airspace Analysis, the maximum height over the Project Site, without affecting Circle-to-Land to SFO, is 660' AMSL. The Project would be far below this height and would not affect Circle-to-Land.

As concluded on page 11 of the Airspace Analysis, the maximum height over the Project Site, without affecting the VFR Traffic Pattern to SFO is 363' AMSL. The Project would be far below this height and would not affect VFR Traffic Pattern.

As concluded on page 13 of the Airspace Analysis, the maximum height over the Project Site, without affecting the Runway 28R Departure procedure Initial Climb Area is approximately 247' AMSL to the SE and approximately 263' AMSL to the NW. The Project would be far below this height and would not affect the Initial Climb Area.

As concluded on page 14 of the Airspace Analysis, the Project would not exceed maximum One Engine Inoperative heights.

Other Flight Hazards

Per ALUCP Policy A4, proposed land uses with characteristics that may cause visual, electronic, or wildlife hazards, particularly bird strike hazards, to aircraft taking off or landing at the Airport

or in flight are incompatible in Area B of the Airport Influence Area. The Project does not contain any unusual characteristics that would cause these hazards. The South San Francisco Zoning Ordinance (Section 20.300.010) contains performance standards to ensure that all development protects the community from nuisances, hazards and objectionable conditions, including those which could be aircraft hazards, including light, glare, air contaminants, or electromagnetic interference. As proposed, the Project would be consistent with the performance standards contained in the Zoning Ordinance, and would not create an aircraft hazard.

CEQA ANALYSIS

The Project's CEQA analysis is underway.

Attachments:

1. 180 El Camino Real Project Description (includes applicable project plans)
2. Environmental Noise Analysis
3. Airspace Analysis

C. PROJECT DESCRIPTION

The following provides a description of the 180 El Camino Real/Steelwave Project (proposed project), including the project site's current location and setting, as well as a discussion of the project components and necessary discretionary actions.

Project Location and Setting

The 11.21-acre, irregularly-shaped project site is located at 180 – 188 El Camino Real and 415 Spruce Avenue, in the City of South San Francisco, California (see Figure 1 and Figure 2). The site consists of a portion of the parcel identified by Assessor's Parcel Number 014-183-110, and is bound by El Camino Real to the west, South Spruce Avenue to the north, and Huntington Avenue to the east. The project site currently contains a vacant, approximately 140,000-square foot (sf) former shopping center. Remaining areas of the project site consist of paved parking areas, and 179 trees exist on-site.

Surrounding existing land uses include a See's Candies warehouse and single-family residences to the north, across South Spruce Avenue; two office buildings to the northeast; commercial and light industrial uses to the east, across Huntington Avenue; commercial businesses to the south; and commercial businesses and single-family residences to the west, across El Camino Real. The project site is located within the San Francisco Airport Land Use Compatibility Plan Area. The City of South San Francisco General Plan designates the proposed project site as El Camino Real Mixed Use, and the site is zoned El Camino Real Mixed Use (ECRMX).

Project Components

In general, the proposed project would include the demolition of the existing on-site building and subsequent redevelopment of the project site into a life sciences campus. Two Site Plans are being considered for the project. The Preferred Site Plan ("proposed project") would include three, six-story research and development (R&D) buildings, a seven-story parking structure, and a seven-story multi-family residential building. A new interior street would bisect the site, and the proposed project would include pedestrian and bike-friendly connections between all proposed buildings.

The Alternative Site Plan would replace the multi-family residential building with a six-story R&D building, resulting in a full R&D/life sciences project. In addition, under the Alternative Site Plan, the parking structure would include two additional levels of parking, and the other R&D buildings would be reduced to five stories.

The proposed project would require approval of a Vesting Tentative Parcel Map, Conditional Use Permit, Transportation Demand Management Program, and Design Review. The requested entitlements for the project are discussed in the following sections. The proposed project will also require a compatibility review pursuant to the San Francisco Airport Land Use Compatibility Plan, as discussed below. Depending upon the actions taken by the Airport Land Use Commission, a local agency override pursuant to Public Utilities Code Section 21676 may also be required.

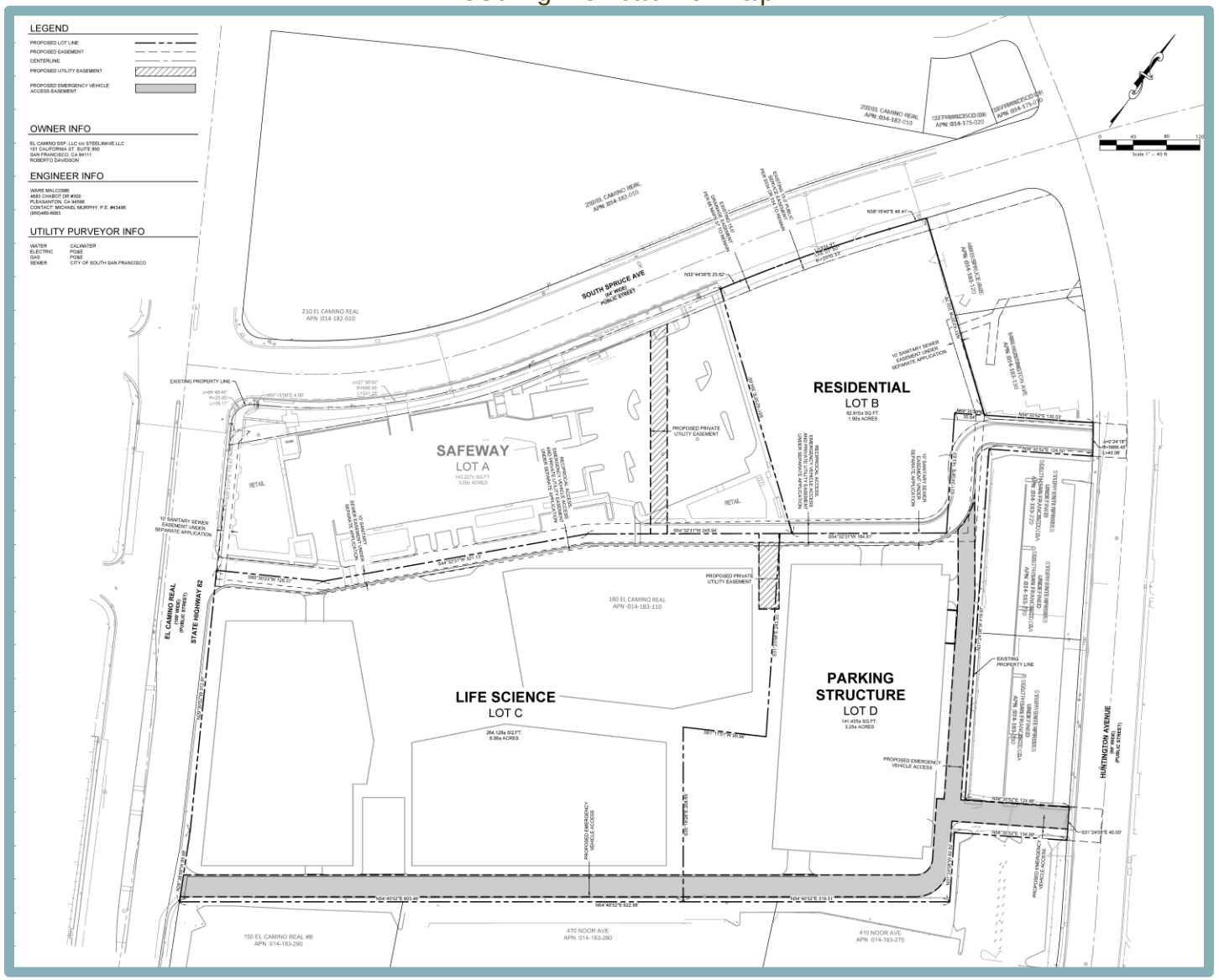
Vesting Tentative Parcel Map

The proposed project would require approval of a Vesting Tentative Parcel Map to subdivide the project site into three parcels (see Figure 3). Lot B would be 1.90 acres, Lot C would be 6.06 acres, and Lot D would be 3.25 acres. Lot A is the site of a separate, approved project, currently in the construction drawings phase, and is not a part of the project (NAPOT). Lot B would be dedicated for residential use (or, under the Alternative, R&D use), Lot C would be dedicated for R&D use, and Lot D would be used for parking.

Figure 1
Regional Project Location

Figure 2
Project Site

Figure 3
Vesting Tentative Map



Conditional Use Permit

Parking requirements are set forth in Table 20.330.004 of the South San Francisco Municipal Code (SSFMC). Under such standards, the required parking for the proposed project would be 2,401 spaces, or 2,432 spaces for the Alternative Site Plan. The applicant has proposed a project-wide total of 1,637 spaces (refer to Table 3, Parking Summary), or 1,708 spaces under the Alternative Site Plan. A reduction in parking spaces is allowable with City approval of a Conditional Use Permit (CUP), and implementation of a Transportation Demand Management (TDM) Plan.

Pursuant to Section 20.090.004 of the SSFMC, approval of a CUP would also be required for the proposed building heights, discussed in more detail below. As noted therein, mixed-use buildings may be up to 120 feet in height, given implementation of a TDM Plan and other City-approved incentives.

Finally, pursuant to Section 20.490.002 of the SSFMC, approval of a CUP would be required to allow business operations and truck loading to occur between the hours of 12:00 AM and 6:00 AM.

Transportation Demand Management Plan

The project would include a TDM Plan intended to help alleviate congestion on local roadways and support a reduction in required on-site parking. TDM measures could include, but are not limited to, providing a designated transportation coordinator, provision of secure long-term bicycle parking, bike repair standards/kiosks, carpool/vanpool incentives, subsidized transit passes, car share programs, etc. The TDM is subject to review and approval by the City.

Site Plan - Design Review

Per Section 20.480.002 of the SSFMC, the proposed project would be subject to Design Review by the City. Specifically, the site plan would be analyzed based on the physical features of the proposed project, including, but not limited to, the following elements: building proportions and architectural details; site design, orientation location; size, location, and arrangement of on-site parking; exterior colors and materials; and location and type of landscaping. The purpose of the regulations is to ensure that development throughout the City is designed to support General Plan policies and to promote high-quality design, well-crafted and maintained buildings and landscaping, the use of high-quality building materials, and attention to the design and execution of building details and amenities in both public and private projects. The proposed site plan is explained in further detail below.

Preferred Site Plan

Following demolition of the on-site building, the proposed project would involve construction of three R&D buildings on Lot C, a parking structure on Lot D, and a multi-family residential building with covered parking on Lot B (see Figure 4). Computer renderings of the proposed project are included as Figure 5, Figure 6, and Figure 7, and a building summary is provided below:

Table 1
Preferred Site Plan Building Summary

Structure	Lot	Stories	Gross Square Footage
R&D Building 1	C	6	268,705
R&D Building 2	C	6	250,894
R&D Building 3	C	6	277,470
Parking Structure	D	8	434,488
Multi-Family Residential Building	B	7	277,866

Figure 4
Preferred Site Plan – Ground Level

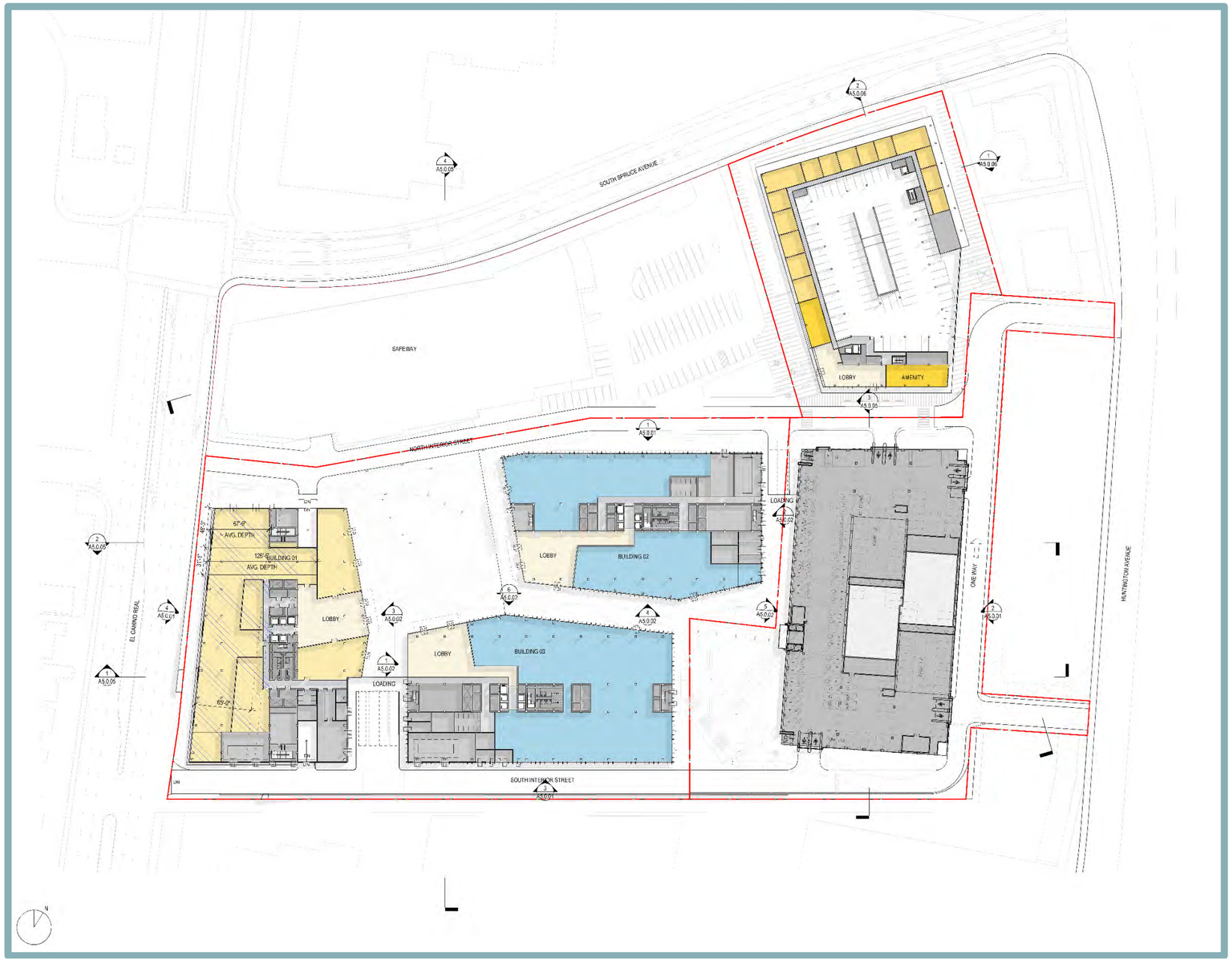


Figure 5
Preferred Site Plan Rendering – R&D Buildings

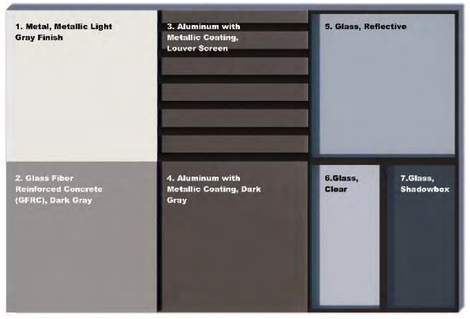
PROJECT AERIAL

EL CAMINO VIEW

BUILDING 02 LOBBY VIEW

BUILDING 03 LOBBY VIEW

SITE ENTRANCE



MATERIALS BOARD

INTERIOR COURTYARD

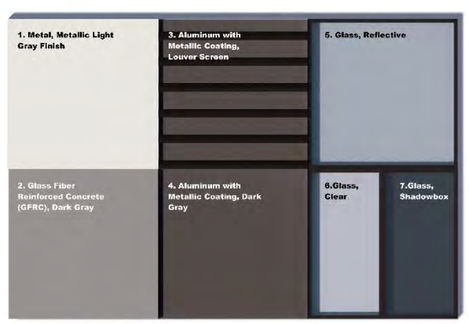
Figure 6
Preferred Site Plan Rendering – Parking Structure

GARAGE SW AERIAL

GARAGE FROM NW CORNER

GARAGE SE AERIAL

GARAGE FROM COURYARD



MATERIALS BOARD

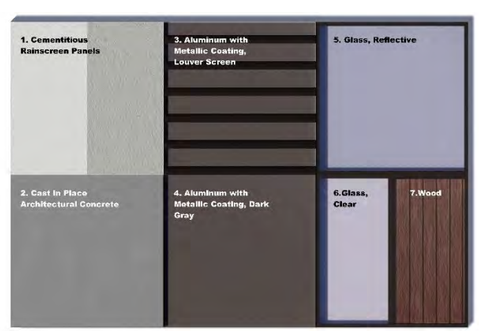
GARAGE FROM SW CORNER

Figure 7
Preferred Site Plan Rendering – Multi-Family Residential Building

PROJECT AERIAL

RESIDENTIAL LOBBY VIEW

RESIDENTIAL VIEW FROM NE CORNER



MATERIALS BOARD RESIDENTIAL

RESIDENTIAL VIEW FROM SPRUCE AVE

R&D Buildings 1-3

Figure 8 presents the floor plan for each level of the R&D buildings. The buildings would be clustered around a central courtyard such that R&D Building 1 would be sited on the western portion of Lot C; R&D Building 2 would be located on the northern portion of Lot C; and R&D Building 3 would be located on the southern portion of Lot C. R&D Building 1 would include a basement parking level, as well as cafeteria space, a conference room, and fitness room on the first floor. The first floor of each building would include a lobby, with access provided from the central courtyard. Levels one through six of each building would include generally open warehousing space. Each R&D building would include an outdoor terrace above the first and second stories.

A four-truck loading dock for R&D Buildings 1 and 3 would be provided between the buildings, with access available from the south interior street. A loading dock that can accommodate two trucks for R&D Building 2 would be located between the building and the parking structure, and would be accessible from the north interior street. Loading would be allowed 24 hours per day, subject to approval of a CUP.

Pursuant to Section 20.090.004, Additional Development Standards – ECRMX District, structures shall not intercept a 60-degree daylight plane inclined inward from the rear property line. The parking structure would be inconsistent with this standard and, as a result, a Rear Building Stepback Exception would be required.

Multi-Family Residential Building

Figure 9 presents the floor plans for each level of the 184-unit multi-family residential building. As demonstrated therein, the first two levels of the proposed building would include central podium parking surrounded by podium apartments on the perimeter. Level one would also include a lobby and amenity space. Levels three through seven would include residential units oriented around a central courtyard.

Building Heights

Section 20.090.004, Development Standards—ECRMX District, of the SSFMC specifies a base maximum building height of 80 feet, but a height up to 120 feet is allowable for mixed-use buildings that meet certain criteria, including but not limited to incorporation of a TDM and other incentives, subject to approval of a CUP. Accordingly, the maximum allowable building height for the proposed project is 120 feet. Per 20.040.005(A2), building height is measured from the average level of the highest and lowest point of the property along El Camino Real to the highest point of the roof ride, or parapet wall. The maximum proposed building heights for the project structures are shown in Table 2.

Table 2
Building Heights

Building	Maximum Height
R&D Building 1	107’ 11”
R&D Building 2	106’ 11”
R&D Building 3	106’ 11”
Parking Structure	63’ 0”
Multi-Family Residential Building / Alternative R&D Building	67’ 9” / 92’

Figure 8
Preferred Site Plan - Floor Plans for R&D Buildings (Lot C)

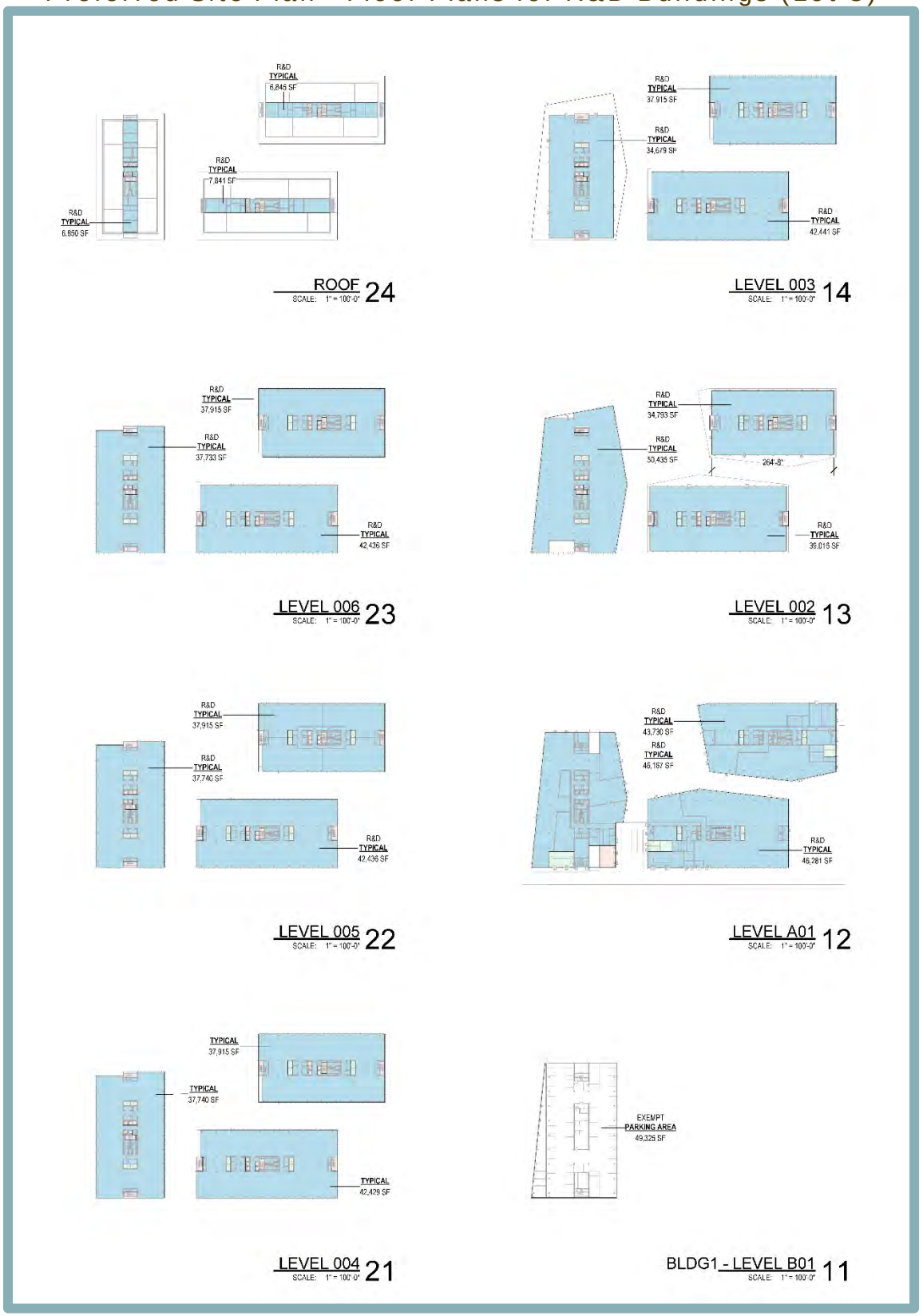
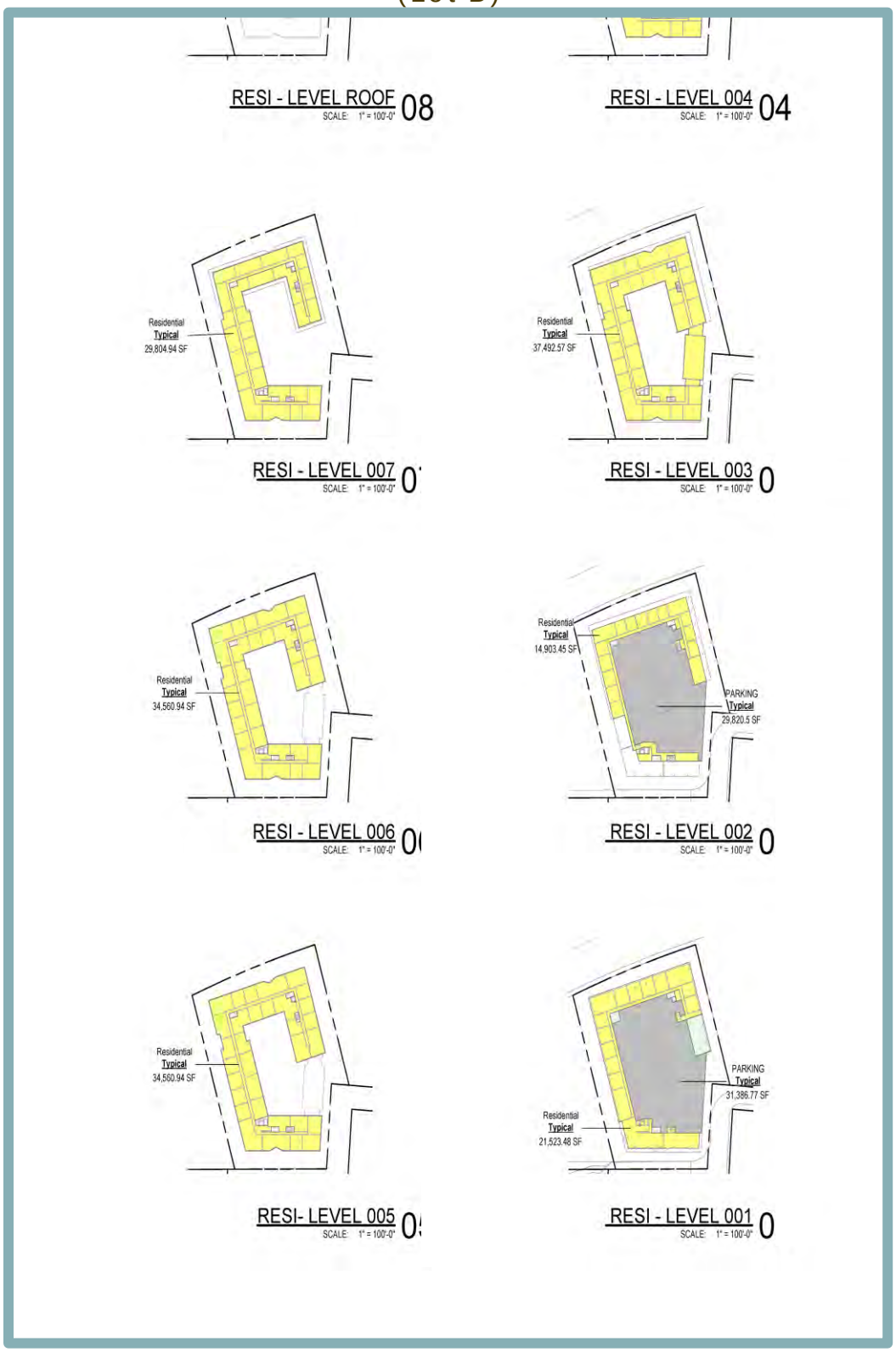


Figure 9
Preferred Site Plan - Floor Plans for Multi-Family Residential Building (Lot B)



Parking

Table 3 presents a summary of the vehicle parking spaces provided throughout the project site. In addition, 12-space bicycle racks would be provided at several locations throughout the project site; and indoor bicycle storage spaces would be provided in all three R&D buildings.

Table 3
Parking Summary

Building	Parking Stalls Provided
R&D Building 1	89 (12)
R&D Building 2	0
R&D Building 3	0
Parking Structure	1,387 (26)
Multi-Family Residential Building	161
Total	***1,637 (38)***

Note: The number in parenthesis "( )" represents the number of the parking stalls that are ADA-compliant.

Alternative Site Plan

As noted previously, implementation of the Alternative Site Plan would involve the development of a fourth R&D building on Lot B, rather than a multi-family residential structure. In addition, the R&D buildings included on Lot C would eliminate one level, and the parking structure on Lot D would include two additional levels. The Alternative Site Plan is included as Figure 10, a computer rendering of the Alternative Site Plan is included as Figure 11, and the floor plans are included as Figure 12. A building summary is provided below.

Table 4
Alternative Site Plan Building Summary

Structure	Lot	Stories	Gross Square Footage
R&D Building 1	C	5	228,660
R&D Building 2	C	5	210,667
R&D Building 3	C	5	232,722
Parking Structure	D	9	565,914
R&D Building 4	B	6	245,878

A loading dock that can accommodate two trucks for R&D Building 4 would be located on the eastern side of the building, with access available from a driveway off the north internal roadway.

Site Access

Access to the project site would be provided by a new internal driveway that would bisect the site and extend from El Camino Real to Huntington Avenue. Three marked crosswalks would be installed along the internal driveway to allow pedestrian and bicycle access between the R&D buildings and the proposed residential building and the future commercial development on Lot A. In addition, a drop-off area would be provided on the southern side of the internal driveway. Emergency vehicle access would be provided by a driveway that would extend along the south and eastern borders of the site, with access from El Camino Real and Huntington Avenue.

Landscaping

The proposed project would provide landscaping improvements throughout the project site, including two courtyard areas associated with the R&D buildings, and an internal courtyard in the proposed residential building. All selected vegetation would be low-water use, compatible with local soil conditions, and trees would be selected from the City's approved Tree Plan.

Figure 10
Alternative Site Plan – Ground Level

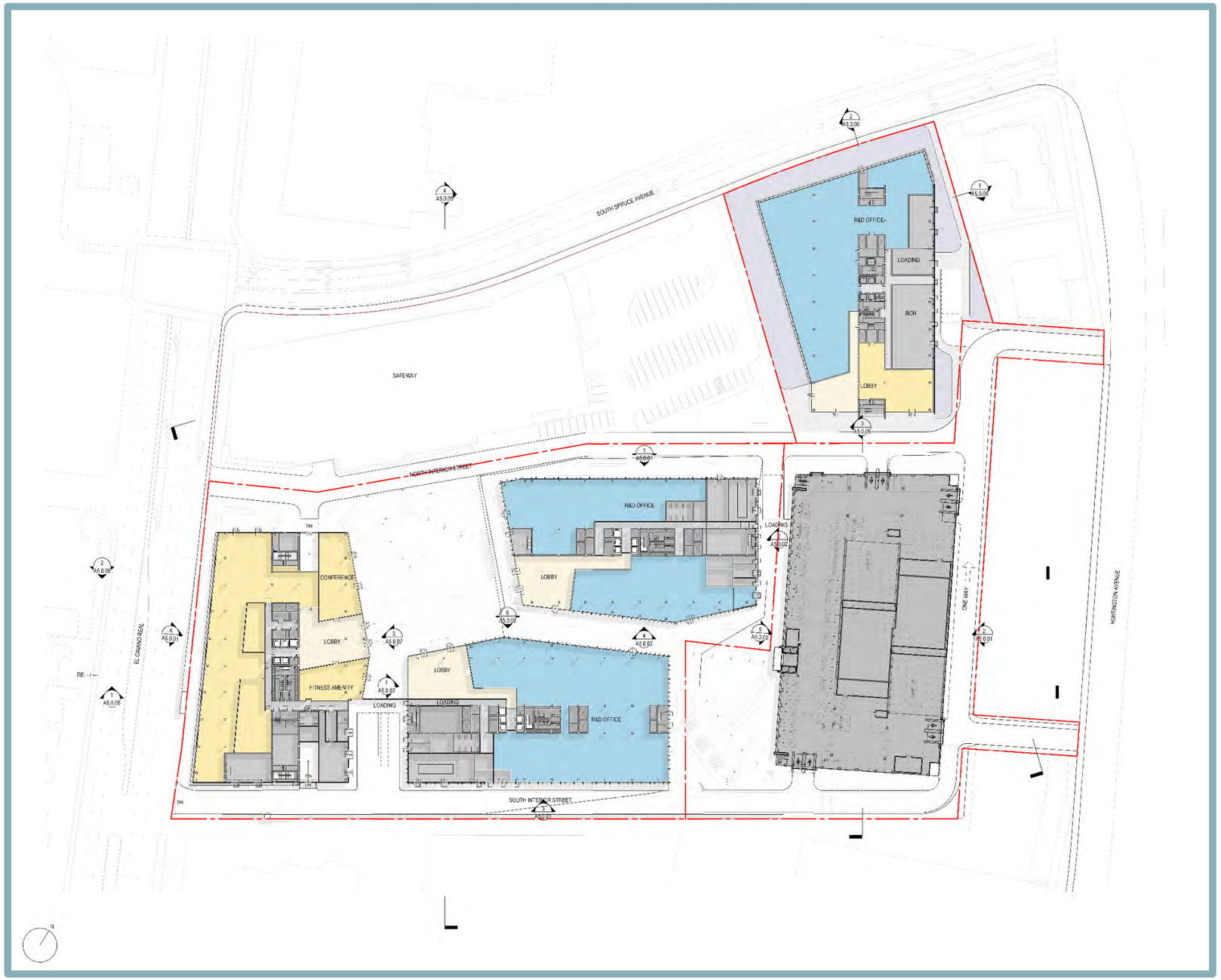
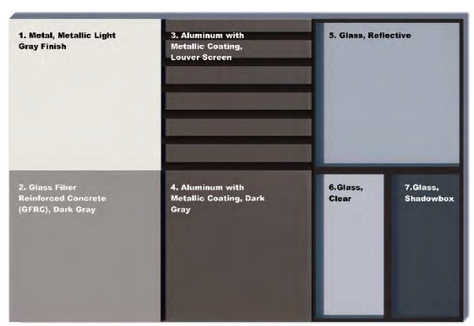


Figure 11
Alternative Site Plan Rendering

PROJECT AERIAL - ALTERNATIVE

EL CAMINO VIEW - ALTERNATIVE

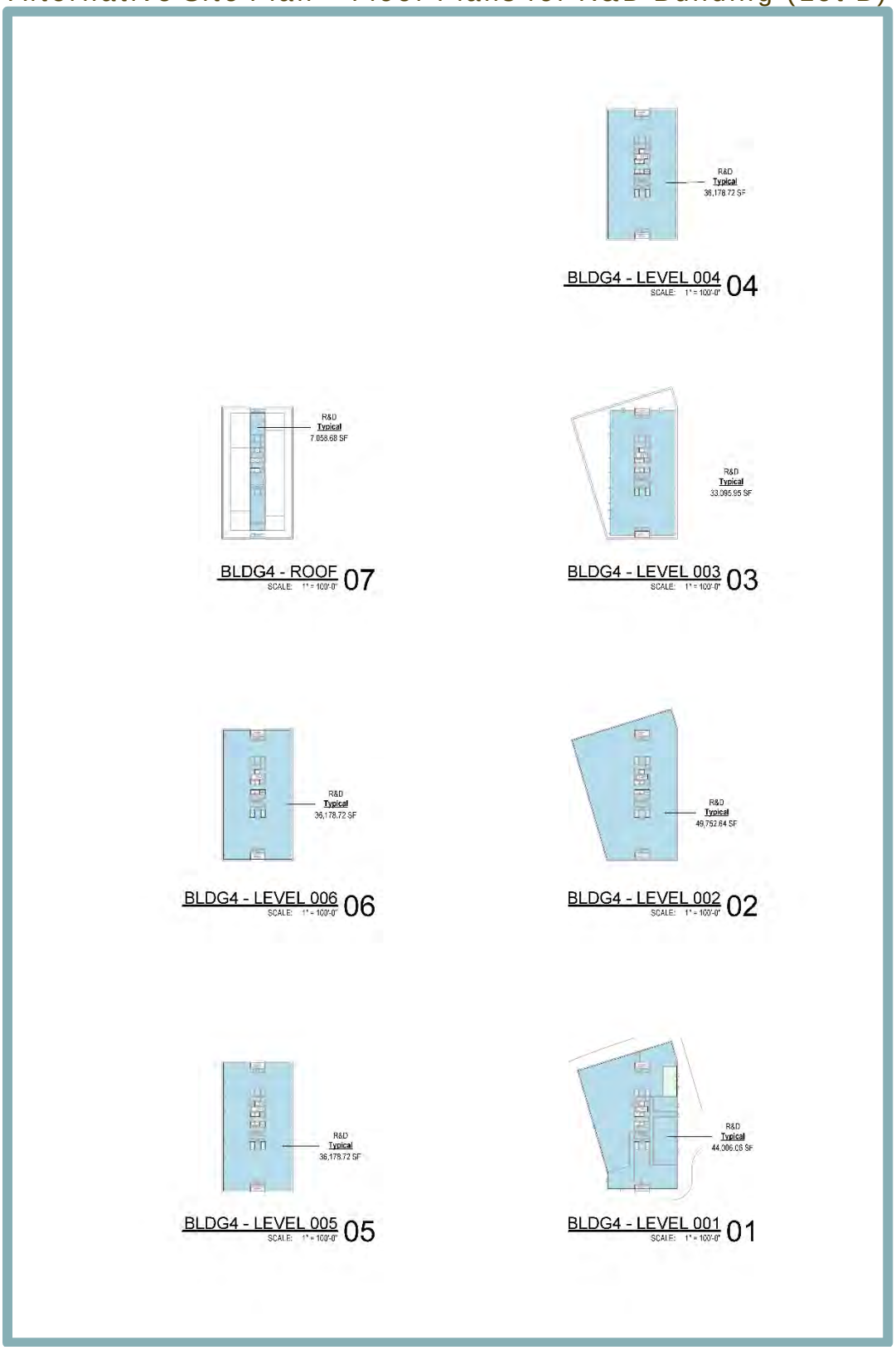
SITE ENTRANCE - ALTERNATIVE



MATERIALS BOARD

INTERIOR COURTYARD - ALTERNATIVE

Figure 12
Alternative Site Plan – Floor Plans for R&D Building (Lot B)



The landscaping throughout the R&D area would include distinct spaces that each have a separate character (see Figure 13 and Figure 14). The front courtyard would include large meadows with specimen oaks and formal groves of trees surrounding synthetic turf.

The “central canyon” area is a corridor linking the front courtyard, south of the internal drive, and the back courtyard, near the south end of the property. The corridor would contain pines, deciduous red maples, and London plane trees with an understory of ferns, native and adapted perennials, and shrubs. The back courtyard would feature a mix of flowering perennials, grasses, succulents and shrubs surrounding synthetic turf. Landscaping would also be provided on the second-floor roof terraces of R&D Buildings 2 and 3, and on the third-floor terrace of Building 1.

The residential area would be landscaped to include terrace planting around the perimeter of the building, as well as an entry garden, community garden, and quiet garden located at the interior courtyard (see Figure 15).

Along the new internal drive and El Camino Real, the planting areas would feature small and medium sized trees with an understory of tough and adapted shrubs, grasses and succulents. The façade of the parking garage that abuts Huntington Avenue would be screened with tall pine trees. In addition, the existing hedgegrow along the project site’s southern boundary would be maintained, and would help screen the proposed buildings from the development to the south.

All landscaping improvements would be subject to the Landscape Design Principles set forth in Section C of Chapter 20.300.007 of the City’s Municipal Code and would be required to abide by the California Model Water Efficient Landscape Ordinance (MWELO).

Utilities and Service Systems

The following section describes sewer, stormwater, and water service at the project site. The Utility Plan is included as Figure 16 and Figure 17.

Sewer

The City of South San Francisco owns and maintains the sanitary sewer system adjacent to the project site. As part of the approved Safeway project on Lot A, the existing on-site 10-inch sanitary sewer main is being upsized to a 15-inch main and relocated to an alignment through the site from El Camino Real to Huntington Avenue. The upsized and relocated main has been designed to accommodate discharge from the proposed project. The proposed project would install sanitary sewer pipeline connections from each building to the upsized sewer pipeline.

Water

The potable water distribution system in the project area is owned and operated by the California Water Service Company. A looped fire service line would be installed on-site, along with several new fire hydrants. The looped fire service line would tie into the existing water main in Huntington Avenue. New domestic water connections would be provided to each building, with a tie into the existing water main in South Spruce Avenue.

Stormwater

The City of South San Francisco also owns and maintains the existing storm drain system adjacent to the site, in Huntington Avenue, as well as the storm drain line that extends through the project site, in the internal driveway. All on-site and off-site storm drainage conveyance systems have been designed to accommodate the 10-year design storm.

Figure 13
Preferred Site Plan - Landscaping Plan

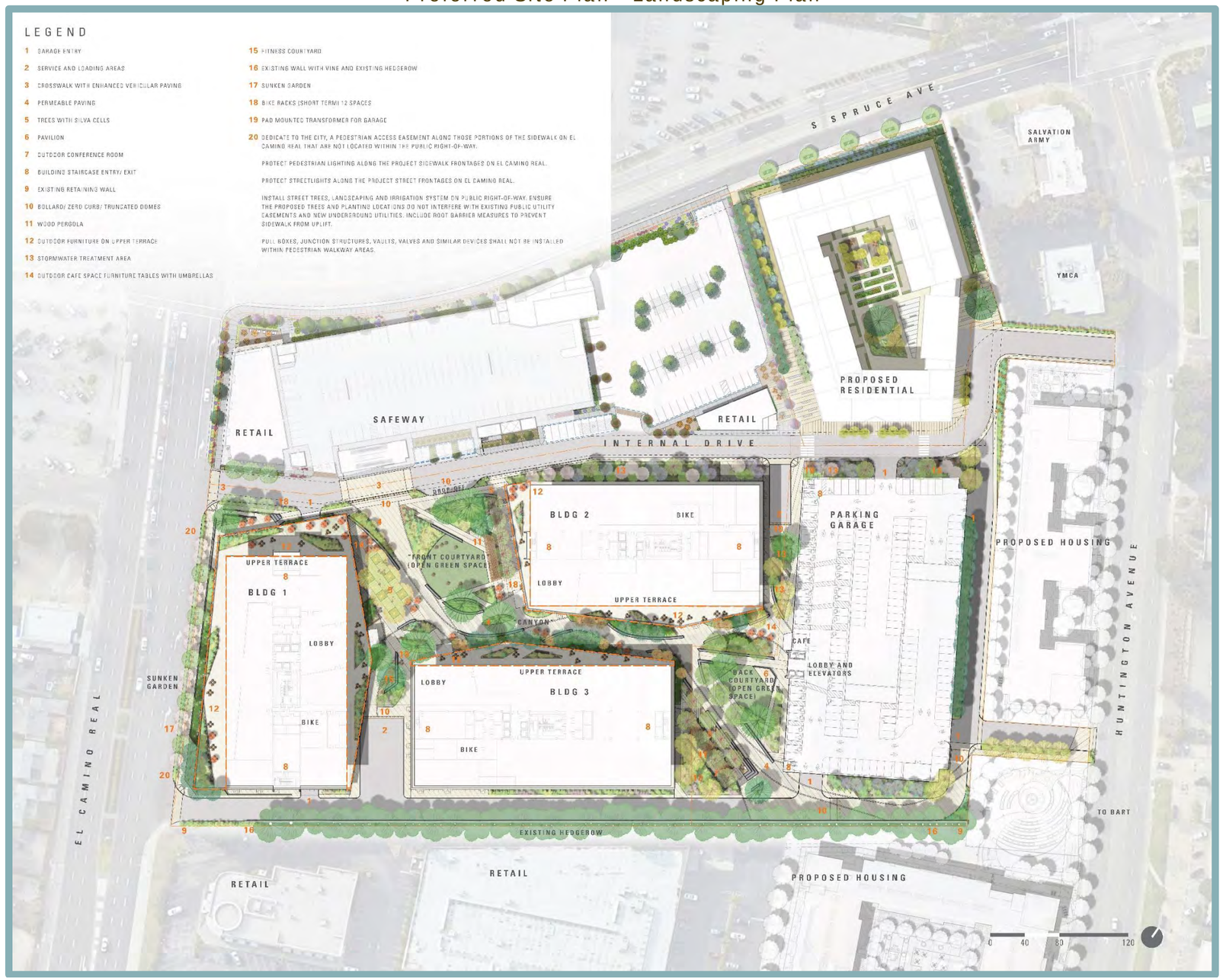


Figure 14
Alternative Site Plan – Landscaping Plan

Figure 15
Landscaping Plan – Multi-Family Residential Building

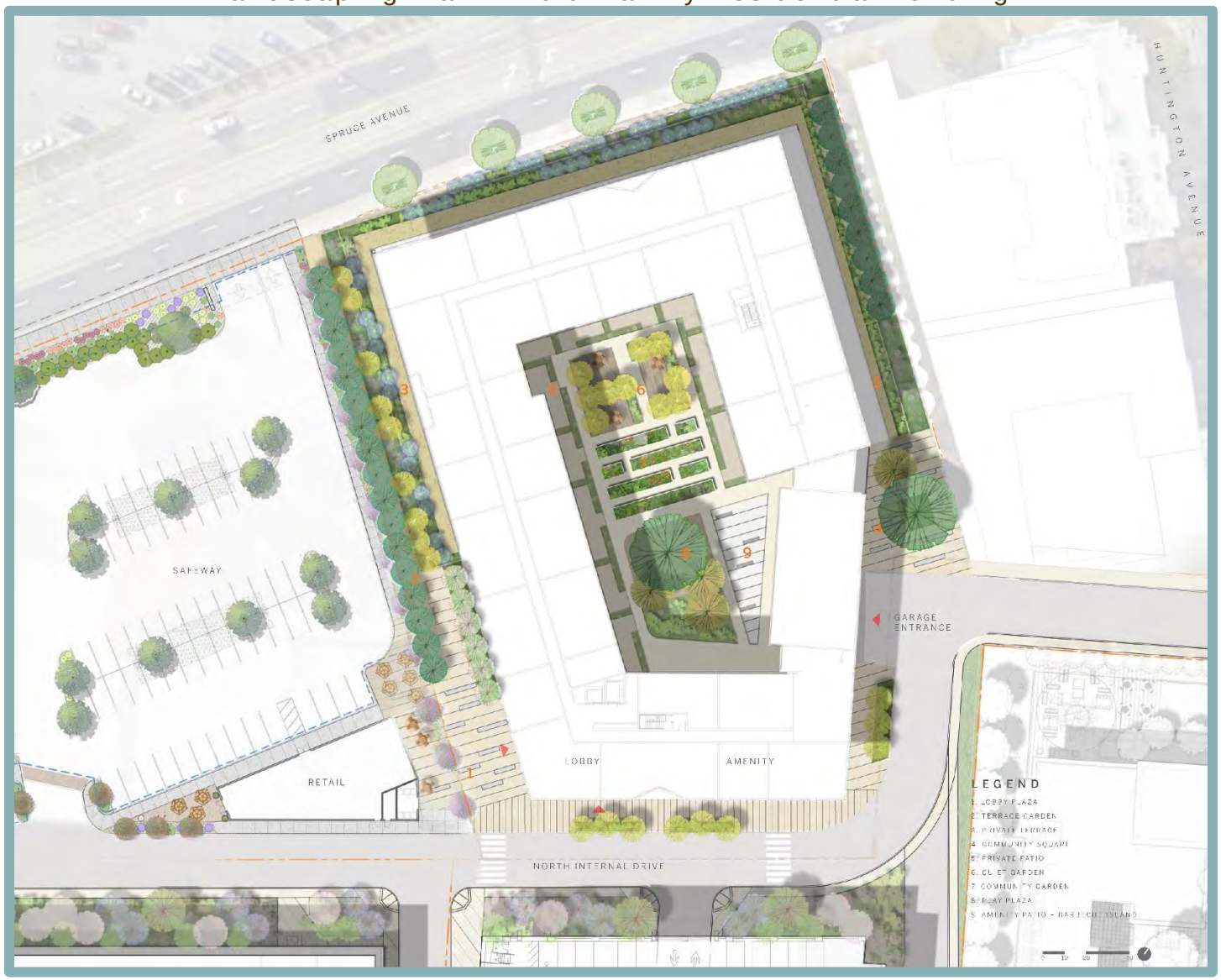


Figure 16
Preferred Site Plan - Utility Plan

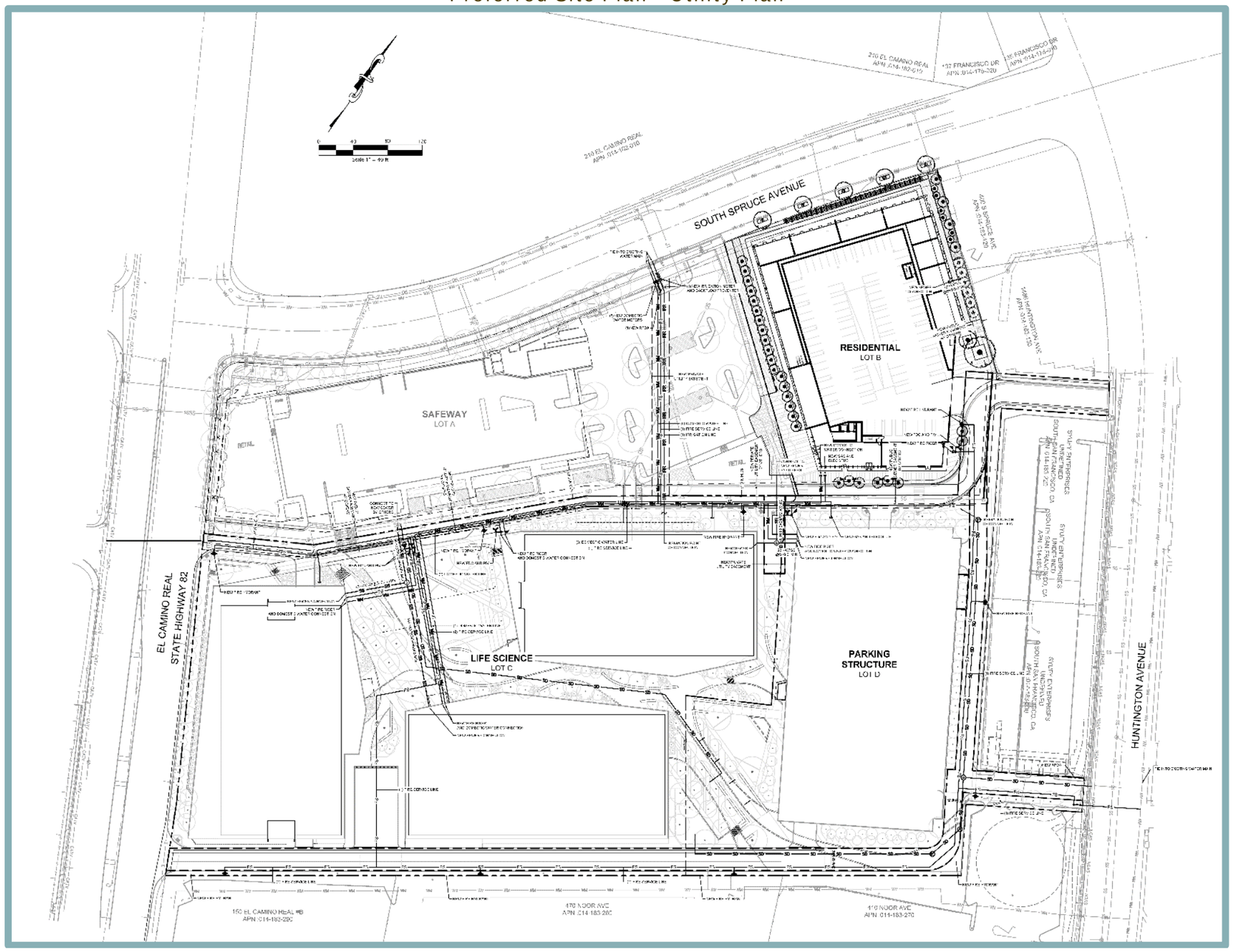
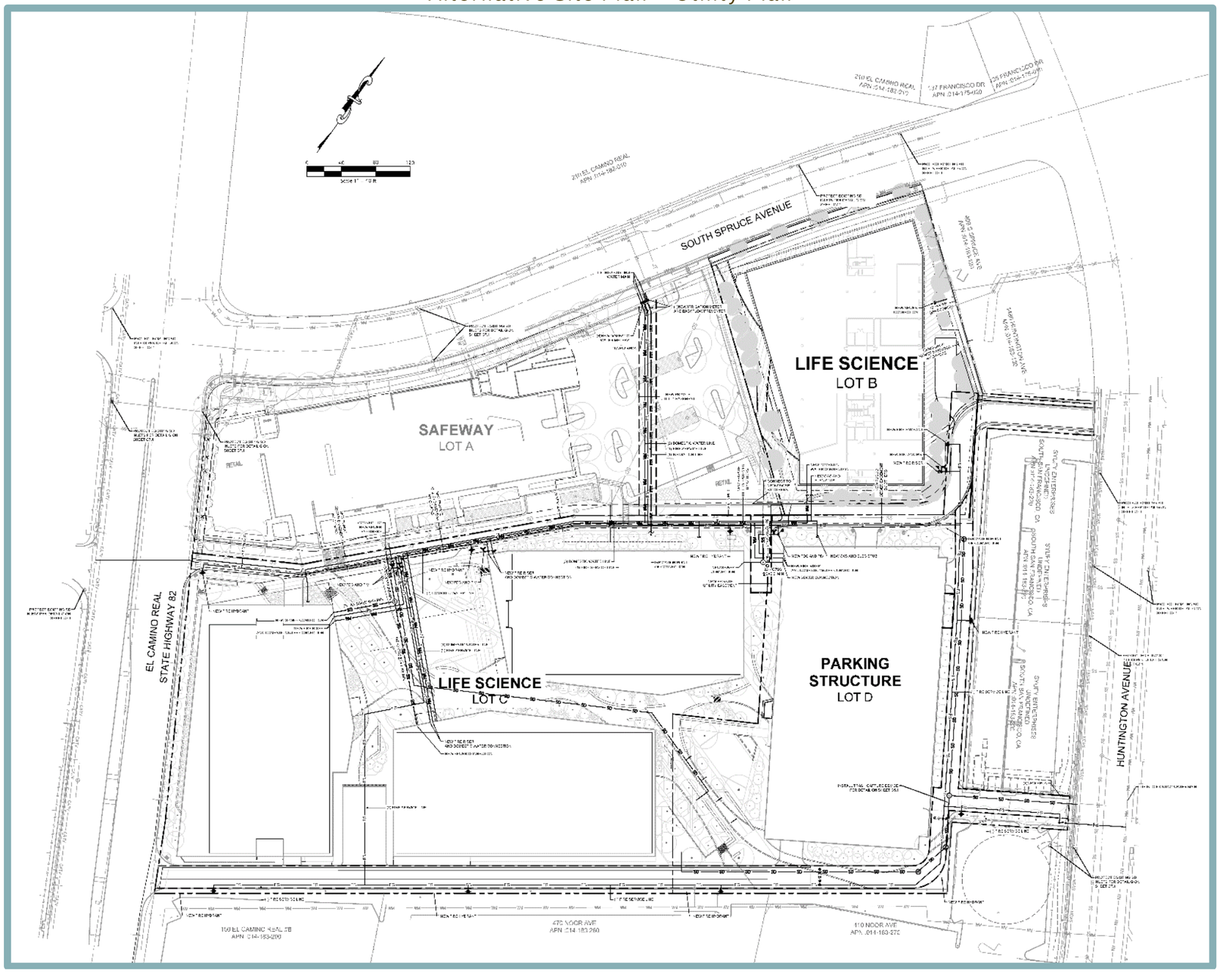


Figure 17
Alternative Site Plan – Utility Plan



The proposed project would treat stormwater from the project site using a combination of pervious landscaping, permeable paving, bioretention basins, self-treating areas, and Silva Cell biotreatment systems (see Figure 18 and Figure 19).

The project site is divided into 13 drainage management areas (DMAs), and stormwater from each DMA would be directed towards the identified treatment measure with eventual discharge to the City's storm drain system. Stormwater runoff from DMAs 1, 2, 3, 8, 10, 11, and 12 would be directed towards associated Silva Cell biotreatment areas. Silva Cell is a pavement system that provides stormwater management and supports large tree growth by providing underground water retention. The retained stormwater is either used for watering by the supported tree or infiltrated through the soil and eventually discharged at the underdrain.

Runoff from DMAs 4, 5, 6, 7, and 9 would be directed towards each associated bioretention area. The bioretention areas would include three to four inches of grass on a minimum of 18 inches of biotreatment soil mix, underlaid with Class II permeable materials. A four-inch perforated underdrain pipe would be placed at the bottom of the bioretention area to collect treated stormwater.

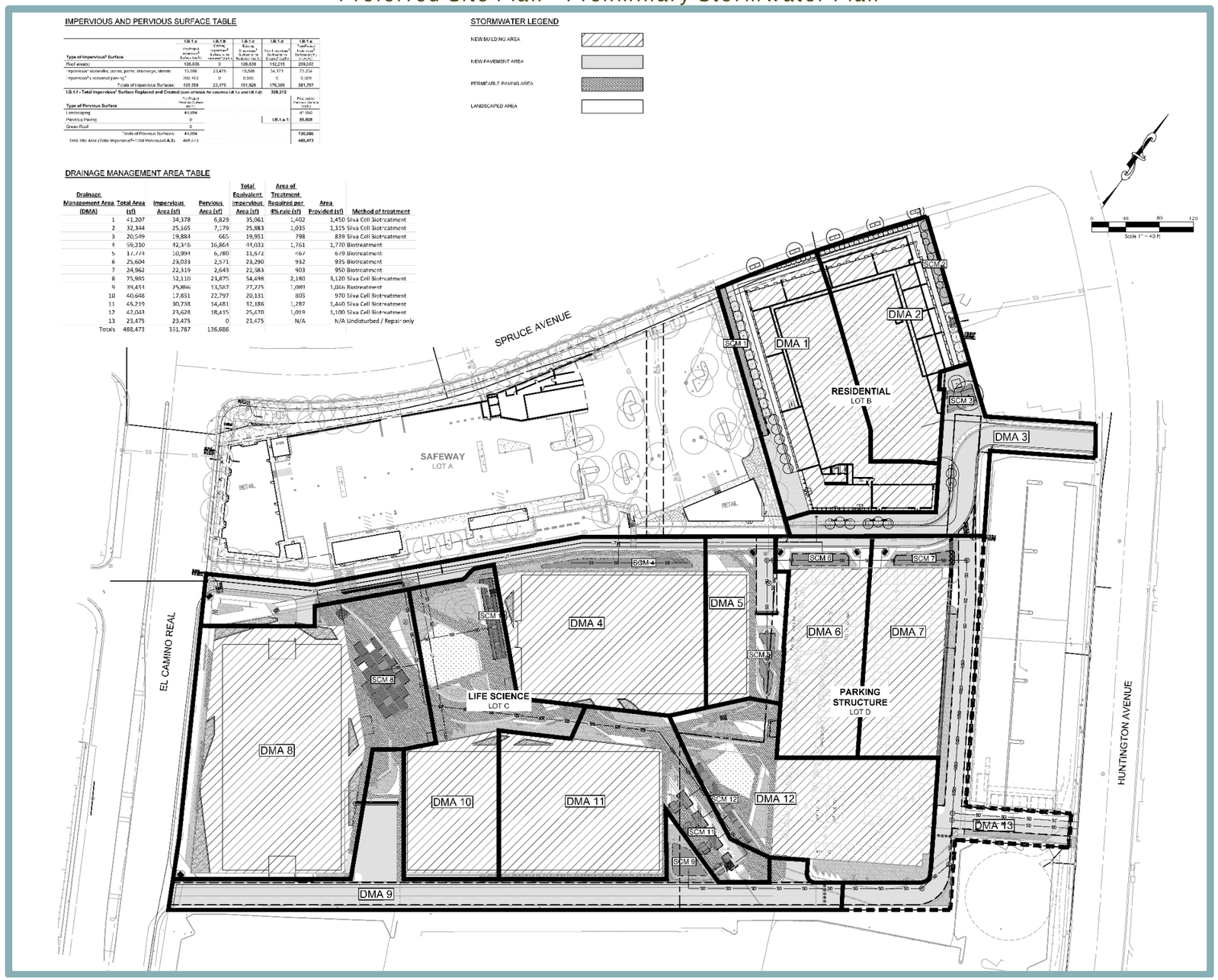
It is noted that the post-project impervious surface area would be less than the pre-project impervious surface area.

Off-Site Improvements

The proposed project would also include the following off-site improvements:

a. Construct new curb, gutter, sidewalk, and ADA curb ramps along the El Camino Real frontage of the project site, from the northern site entrance to the existing sidewalk approximately 50 feet south of the southern site entrance.
b. Perform base repairs and provide a two-inch grind and overlay (edge of pavement to the median island) of the asphalt concrete pavement on northbound El Camino Real, from the south entry of the project site to Spruce Avenue.
c. Install streetlights along the project street frontages on El Camino Real. The light poles and fixtures shall be ornamental streetlights to match City Standards.
d. All electrical and communication lines serving the project site shall be placed underground within the project site being developed and directed to the nearest overhead facility or underground utility vault.

Figure 18
Preferred Site Plan - Preliminary Stormwater Plan



IMPERVIOUS AND PERVIOUS SURFACE TABLE

Type of Impervious[1] Surface	I.B.1.a (existing impervious[1] Surface (sf))	I.B.1.b (Existing impervious[1] Surface to remain (sqft))	I.B.1.c (Existing Impervious[1] Surface to be Replaced (sq ft))	I.B.1.d (Net Impervious[1] Surface to be Created (sq ft))	I.B.1.e (Total Impervious[1] Surface (sq ft) (I.B.1.b + I.B.1.c + I.B.1.d))
Roof areas:	126,636	0	126,636	142,215	268,851
Impervious[1] sidewalks, paths, paths, driveways, streets	15,586	23,475	15,586	34,171	73,254
Impervious[1] covered parking[2]	9,587	0	9,587	0	9,587
Totals of Impervious Surfaces:	151,809	23,475	151,809	176,386	351,787
I.B.1.f - Total Impervious[1] Surface Replaced and Created (sum of totals for columns I.B.1.c and I.B.1.d):					328,312

Type of Pervious Surface	Sq ft (Pervious Surface (sq ft))			Pervious Surface (sq ft)
Landscaping	49,094			49,094
Pervious Paving	0		I.B.1.a.1:	85,808
Green Roof	0			
Totals of Pervious Surfaces:	49,094			136,686
Total Site Area (Total Impervious[1] + Total Pervious(I.A.2))	488,473			488,473

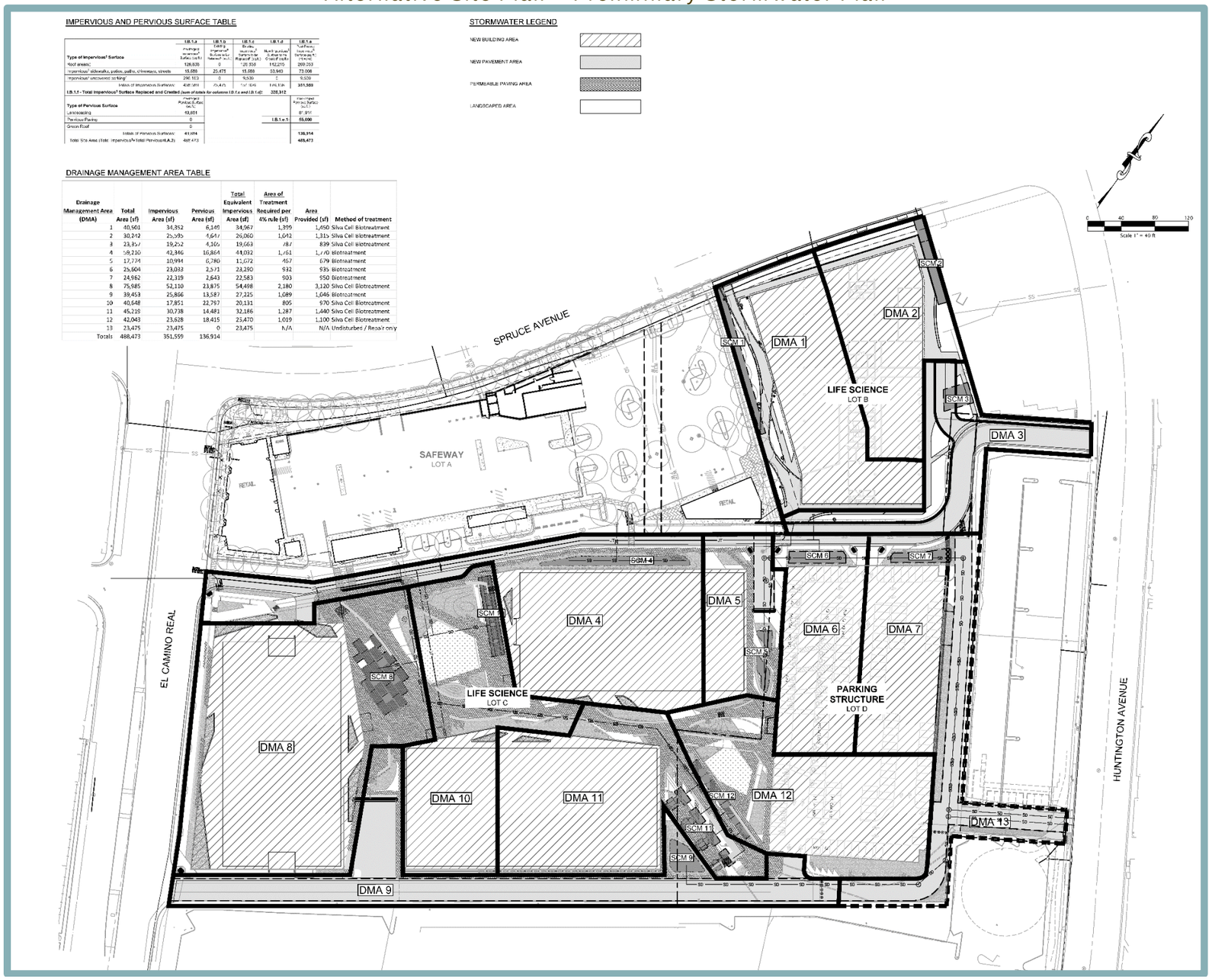
STORMWATER LEGEND

- NEW BUILDING AREA
- NEW PAVEMENT AREA
- PERMEABLE PAVING AREA
- LANDSCAPED AREA

DRAINAGE MANAGEMENT AREA TABLE

Drainage Management Area (DMA)	Total Area (sf)	Impervious Area (sf)	Pervious Area (sf)	Total Equivalent Impervious Area (sf)	Area of Treatment Required per 4% rule (sf)	Area Provided (sf)	Method of treatment
1	41,207	34,378	6,829	35,061	1,402	1,450	Silva Cell Biotreatment
2	32,344	25,165	7,179	25,883	1,035	1,315	Silva Cell Biotreatment
3	20,549	19,884	665	19,951	798	839	Silva Cell Biotreatment
4	59,210	42,346	16,864	44,032	1,761	1,770	Biotreatment
5	17,774	10,994	6,780	11,672	467	679	Biotreatment
6	25,604	23,033	2,571	23,290	932	935	Biotreatment
7	24,962	22,319	2,643	22,583	903	950	Biotreatment
8	75,985	52,110	23,875	54,498	2,180	3,120	Silva Cell Biotreatment
9	39,453	25,866	13,587	27,275	1,089	1,046	Biotreatment
10	40,648	17,851	22,797	20,131	805	970	Silva Cell Biotreatment
11	45,219	30,738	14,481	32,186	1,287	1,440	Silva Cell Biotreatment
12	42,043	23,628	18,415	25,470	1,019	1,100	Silva Cell Biotreatment
13	23,475	23,475	0	23,475	N/A	N/A	Undisturbed / Repair only
Totals	488,473	351,787	136,686				

Figure 19
Alternative Site Plan – Preliminary Stormwater Plan



Discretionary Actions

Implementation of the proposed project would require City approval of the following entitlements:

- Vesting Tentative Parcel Map;
- Conditional Use Permit for Parking Reduction, Building Height, and Hours of Operation;
- Transportation Demand Management Program;
- Design Review; and

Compatibility review pursuant to the San Francisco Airport Land Use Compatibility Plan. Depending on the actions taken by the Airport Land Use Commission, a local agency override pursuant to Public Utilities Code Section 21676.

Attachment 2 - Environmental Noise Analysis

180 El Camino Real Residences

South San Francisco, California

ALUC ENVIRONMENTAL NOISE ANALYSIS

28 February 2022

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Salter Project: 22-0062

1.0 INTRODUCTION

We have conducted an Airport Land-Use Commission (ALUC) environmental noise analysis for the proposed multi-family housing project at 180 El Camino Real in South San Francisco.

This report is broken into the following sections:

- Section 1.0 – Introduction
- Section 2.0 – Acoustical Criteria
- Section 3.0 – Noise Environment
- Section 4.0 – Recommendations
- Appendix A – Fundamentals of Environmental Acoustics
- Appendix B – SFO ALUCP 2020 Contours, with Project Site Indicated
- Appendix C – 2019 SFO Noise Contour Map, with Project Site Indicated
- Appendix D – 2021 3rd Quarter Noise Contour Overlay, December 2019 Airport Director's Report, with Project Site and Nearby Monitors Indicated

Those readers not familiar with the fundamental concepts of environmental noise may refer to Appendix A and **Figure A1** for additional information.

1.1 Executive Summary

The proposed project at 180 El Camino Real will consist of four buildings (three Research & Development buildings and one multi-family residential building). The site is located along South Spruce Avenue, between El Camino Real and Huntington Avenue. This ALUC study only addresses the residential building. In summary:

- The project site is located near the CNEL[1] 65 to 70 dB contours for airport noise for the three available site noise contour maps (See **Section 3.2** and **Appendices B, C, and D** for further information).
- Per the South San Francisco Noise Element, the ALUC uses the "latest quarterly noise contour report to determine the compatibility of land use plans". This quarterly noise contour is shown in **Appendix D**. The 2021 3rd Quarter contours indicate the site is outside of the CNEL 65 dB contour for airport noise.

1 CNEL (Community Noise Equivalent Level) – A descriptor for a 24-hour A-weighted average noise level. CNEL accounts for the increased acoustical sensitivity of people to noise during the evening and nighttime hours. CNEL penalizes sound levels by 5 dB during the hours from 7 PM to 10 PM and by 10 dB during the hours from 10 PM to 7 AM. For practical purposes, the CNEL and DNL are usually interchangeable.

- The project can achieve the State Building Code standard of CNEL 45 dB indoors with the use of commercially-available windows and conventional wood-frame construction.

2.0 ACOUSTICAL CRITERIA

2.1 State Noise Standards

The 2019 California Building Code requires that the indoor noise level in residential units of multi-family projects not exceed DNL[2] 45 dB.

2.2 City Noise Standards

The City also has the following related policies:

- Policy 9-I-1: Work to adopt a pass-by (single event) noise standard to supplement the current 65 dB CNEL average noise level standard as the basis for aircraft noise abatement programs.
- Policy 9-I-2: Work to adopt a lower average noise standard for aircraft-based mitigation and land use controls.
- Policy 9-I-4: Ensure that project applications for all new noise-sensitive land uses (plans and specifications), including hospitals and residential units proposed within the CNEL 60 dB to CNEL 69 dB aircraft noise contour include an acoustical study prepared by a professional acoustic engineer, that specifies the appropriate noise mitigation features to be included in the design and construction of these uses, to achieve an interior noise level of not more than CNEL 45 dB in any habitable room, based on the latest official SFIA noise contours[3] and on-site noise measurement data.
- Policy 9-I-6: Require that applicants for new noise-sensitive development in areas subject to noise generators producing noise levels greater than 65 dB CNEL, obtain the services of a professional acoustical engineer to provide a technical analysis and design of mitigation measures.
- Policy 9-I-7: Where site conditions permit, require noise buffering for all noise-sensitive development subject to noise generators producing noise levels greater than 65 dB CNEL. This noise attenuation method should avoid the use of visible sound walls, where practical.
- Policy 9-I-10: Do not allow new residential or noise sensitive development in the CNEL 70 dB+ areas impacted by SFO operations, as required by Airport Land Use Commission infill criteria, with

2 DNL (Day-Night Average Sound Level) – A descriptor for a 24-hour A-weighted average noise level. DNL accounts for the increased acoustical sensitivity of people to noise during the nighttime hours. DNL penalizes sound levels by 10 dB during the hours from 10 PM to 7 AM. For practical purposes, the DNL and CNEL are usually interchangeable. DNL is sometimes written as Ldn.

3 We understand the latest noise contours are the 2021 3rd Quarter noise contours. See Appendix D.

the exception of projects deemed appropriate by the City Council and to the extent necessary, approved through the local agency override process.[4]

- Policy 9-I-11: Require new residential development in area between the most recent FAA-accepted 65 and 70 dB CNEL aircraft noise contours for San Francisco International Airport (SFO), or those projects deemed appropriate by the City Council and, to the extent necessary, approved through the local agency override process[4], to grant an avigation easement to the City and County of San Francisco, as proprietor of SFO.

The City of South San Francisco's Noise Element notes that the San Mateo County ALUC will need to approve new development prior to permit issuance. The Noise Element identifies the following ALUC land-use compatibility guidelines for residential land use:

Table 1: Land Use Criteria for Noise-Impacted Areas

CNEL Range	General Land Use Criteria
Less than 65 dB	Satisfactory; no special insulation requirements
65 to 70 dB	Development requires analysis of noise reduction requirements and noise insulation as needed
Over 70 dB	Development should not be undertaken

To determine if a site is in an aircraft noise-impacted area, the ALUC determines the CNEL 65 dB boundary using the following resources:

- The federal CNEL 65 dB boundary is determined using the most recent noise exposure map (NEM) as accepted by the FAA under the Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Program. At this time, the latest accepted NEM is the Final 2019 Noise Exposure Map[5]. This map is included in Appendix C with the project site indicated.
- The state CNEL 65 dB boundary is determined from the quarterly noise contours, based on the required airport noise monitoring system. Appendix D contains the 2021 3rd Quarter noise contour overlay, as well as the directors report with the approximate location of the project site indicated.

Per the Noise Element, the ALUC uses the latest quarterly noise contour to determine the compatibility of land use plans. Appendix D contains the 2021 3rd Quarter Noise Contour overlay.

4 Per the General Plan Amendment Resolution #20-870, which was passed on 1 December 2020. Amendment information provided by Genna Yarkin on 28 February 2022.

5 Per www.flysfo.com, this NEM was submitted for approval in July 2018. The Final 2019 map is dated 13 August 2015.

2.3 SFO Comprehensive Airport Land Use Compatibility Plan

Table IV-I of the November 2012 *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport* contains the following polices and compatibility criteria for evaluating multi-family residential land uses.

- Policy NP-1 Noise Compatibility Zones: For the purposes of ALUC, the projected 2020 CNEL noise contour map from the Draft Environmental Assessment for the Proposed Runway Safety Area Program shall define the boundaries within which noise compatibility policies described in this Section shall apply.
- Policy NP-2 Airport Noise/Land Use Compatibility Criteria: The compatibility of proposed land uses located in the Airport noise compatibility zones shall be determined according to the noise/land use compatibility criteria shown in Table IV-1 [excepts shown below as Table 2]. The criteria indicate the maximum accepted airport noise levels, described in terms of CNEL, for the indicated land uses. The compatibility criteria indicate whether a proposed land use is "compatible", "conditionally compatible", or "not compatible" within each zone, designated by the identified CNEL ranges.

Table 2: ALUCP Noise/Land Use Compatibility Criteria

CNEL Range	Land Use
Less than 65 dB	Land use and related structures compatible without restrictions.
65 to 70 dB	Land use and related structures are permitted, provided that sound insulation is provided to reduce interior noise levels from exterior sources to CNEL 45 dB or lower and that an avigation easement is granted to the City and County of San Francisco as operator of SFO.
70 dB to 75 dB	Land use and related structures are not compatible. However, use is conditionally compatible only on an existing lot of record zoned only for residential use as of the effective date of the ALUCP. Use must be sound-insulated to achieve an indoor noise level of CNEL 45 dB or less from exterior sources.
Over 75 dB	Land use and related structures are not compatible

- Policy NP-4 Residential Uses Within CNEL 70 dB Contour: As described in Table IV-1, residential uses are not compatible in areas exposed to noise above CNEL 70 dB and typically should not be allowed in high noise areas.
  - Policy NP-4.1 Situations Where Residential Use is Conditionally Compatible: Residential uses are considered conditionally compatible in areas exposed to noise above CNEL 70 dB only if the proposed use is on a lot of record zoned exclusively for residential use as of the effective date of the ALUCP. In such a case, the residential use must be sound-insulated to achieve an indoor noise level of CNEL 45 dB or less from exterior sources. The property owner also shall grant an

avigation easement to the City and County of San Francisco in accordance with Policy NP-3 prior to issuance of a building permit for the proposed building or structure.

3.0 NOISE ENVIRONMENT

3.1 Project Description

The project site is located in South San Francisco, and is bounded by El Camino Real, Huntington Street, and South Spruce Avenue. It is also near San Francisco International Airport (SFO). The major noise source at the project site is traffic along these roads, and flyovers from SFO.

To quantify the existing noise environment, we conducted three long-term noise measurements between 19 and 21 January 2022 (see **Figure 1** for measurement locations and measured noise levels). The long-term noise monitors were installed at a height of approximately 12 feet above grade.

A future traffic analysis was not provided for this project. Therefore, we have added 1 dB to the calculated noise levels to account for general future traffic increases[6].

3.2 Noise from SFO

Per the published resources, the site is exposed to the following noise levels from SFO airport:

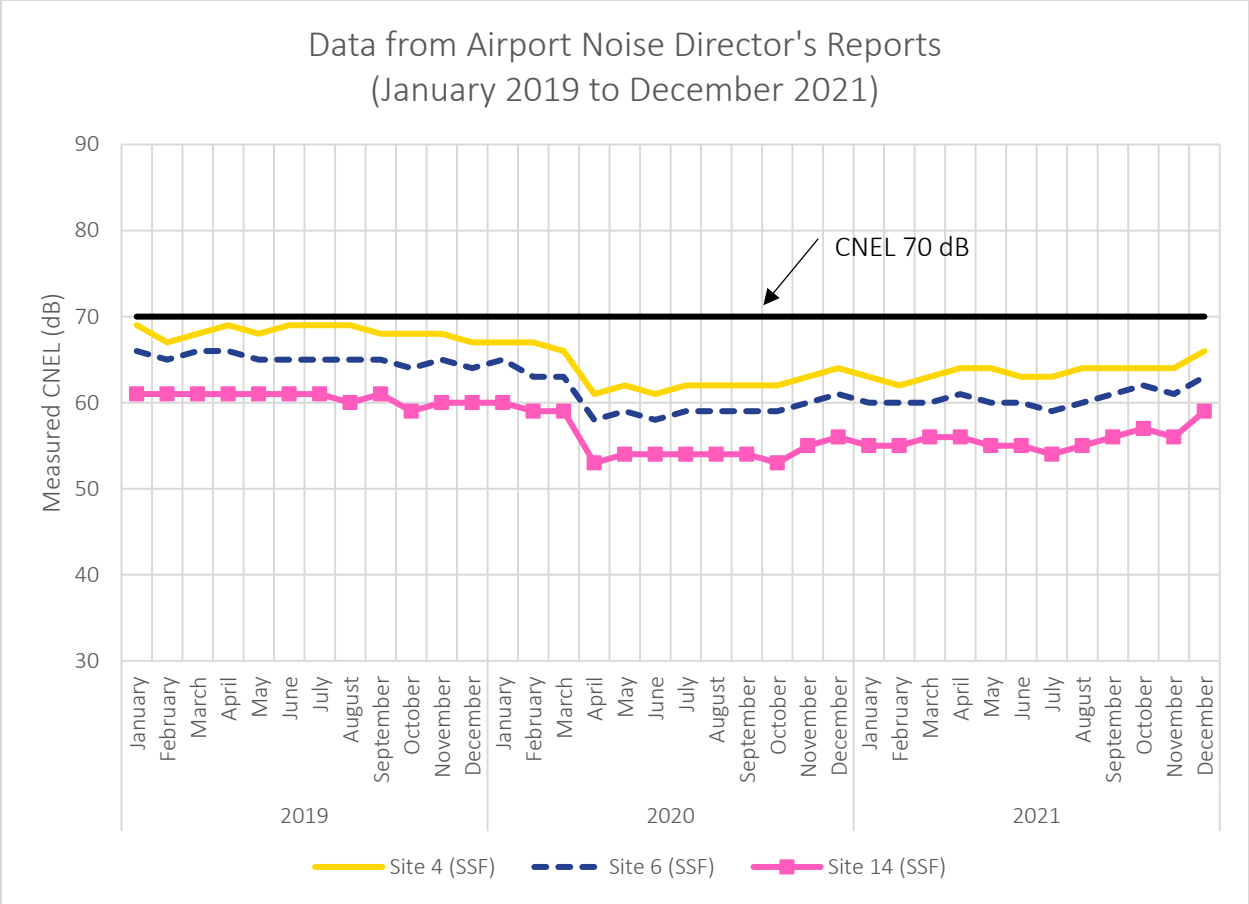
- *November 2012 Comprehensive Airport Land Use Compatibility Plan:* Exhibit IV-6 shows the site within or directly on the CNEL 70 dB contour. This exhibit references noise contours provided in 2011. See **Appendix B** for the project site location.
- *Final 2019 Noise Exposure Map:* **Appendix C** contains the Part 150 map generated by the San Francisco International Airport. Per the exhibit, it was submitted on 13 August 2015. This exhibit references sources from 2014 for the creation of the noise contours.

  Salter has added an overlay of the project site to the Part 150 map to clarify the project location. Per this map, the majority of the project site is located within the CNEL 65 to 70 dB contour.
- *December 2019 Airport Director's Report[7]:* See **Appendix D** for the approximate site location. Per this overlay[8], the project site is fully beyond the CNEL 65 contour. This information is based on 2021 noise monitoring.

6 The California Department of Transportation assumes a traffic volume increase of three-percent per year, which corresponds to a 1 dB increase in DNL over a ten-year period.

7 Due to decreased noise levels from March 2020 onward due to the pandemic, we have used the December 2019 Airport Director's Report.

8 SFO 2021 3rd Quarter CNEL Overlay



GIS maps of historical quarterly noise reports are not available at this time. We have reviewed the noise levels provided in the monthly Airport Director's Reports dating back to January 2019. For the three noise monitors closest to the project site, noise levels are generally below CNEL 69 dB. The graph below shows the monthly measured noise levels since January 2019. Detailed information is provided in **Appendix D**, along with information on the noise monitor locations.

3.3 Site Noise Context

The main noise sources at the project site include vehicle passbys on the nearby roadways and aircraft overflights from SFO. We conducted noise measurements at the project site (see **Figure 1**), which collected noise data from both the car passbys and the aircraft overflights. We measured on-site noise levels of CNEL 71 to 75 dB at roads surrounding the project site (see **Figure 1**).

Since both car and aircraft noise exist at the site, we have referenced the Airport Director's Report to determine the aircraft contribution to noise at the site. The Airport Director's Report summarizes the noise data from 29 noise monitors managed by the airport that continuously collect noise data. In general, these airport noise monitors are located away from major roadways, reducing the amount of

traffic noise that is collected (see data for aircraft noise presented in **Appendix D**), so that the airport contribution can be determined.

Using the 2019 December Airport Director's Report[9], the contribution of airport noise at the site is expected to approximately CNEL 69 dB[10]. Logarithmically, subtracting the aircraft contribution from our noise measurements would result in a noise level of approximately CNEL 69 dB from traffic:

CNEL **75**[a] dB [from aircraft+traffic] **–** CNEL **69**[b] dB [from aircraft] **=** CNEL **74**[c] dB [from traffic]

a = measured at project site, see Figure 1
b = determined from 2019 December Airport Director's Report
c = calculated

See **Appendix A** for additional information on decibel mathematics.

Individual aircraft flyovers from SFO are significantly louder than individual car passbys, but the flyovers occur at a lower frequency than the car passbys, resulting in similar average overall noise levels (CNEL).

For reference, CNEL above 70 dB are common along large roadways and rail lines. Figure 9-2 of the South San Francisco Noise Element indicates that noise levels in South San Francisco were estimated to be above CNEL 70 dB in 2006 in the vicinity of I-280, I-380, US 101, and along the Caltrain line. Recent noise measurements indicate that noise levels are above CNEL 70 dB along El Camino Real.

4.0 RECOMMENDATIONS

To meet the Code criterion of CNEL 45 dB inside residences, it will be necessary for the windows and exterior doors to have STC[11] ratings. Our calculations are based on preliminary drawings dated 6 January 2022 and the following assumptions and understandings of the current design:

- Living rooms are 12 by 15 feet
- Bedrooms are 10 by 12 feet
- Glazing is 50% of the facade
- Flooring is hard surfaced in all rooms, including bedrooms
- Residences have 9-foot-tall ceilings

9 Due to decreased noise levels from March 2020 onward due to the pandemic, we have used the December 2019 Airport Director's Report.

10 The project site is near Airport Noise Monitors 04, 06, and 14. We have referenced Monitor 04 for this CNEL level.

11 STC (Sound Transmission Class) – A single-number rating defined in ASTM E90 that quantifies the airborne sound insulating performance of a partition under laboratory conditions. Increasing STC ratings correspond to improved airborne sound insulation.

Based on the above, the following is a summary of our initial analysis:

- Rooms along Spruce: STC ratings up to 43
- Rooms along the east and west facades: STC ratings up to 38
- Rooms along the south facade: STC ratings up to 35

The recommended STC ratings are for full window assemblies (glass and frame) rather than just the glass itself. Tested sound-rated assemblies should be used. For reference, typical construction-grade assemblies achieve an STC rating of 28. Where STC ratings above 32 are required, at least one pane will need to be laminated. STC ratings above 38 typically require IGU greater than one-inch thick. This will vary depending on the window manufacturer.

Since the windows need to be closed to achieve an indoor DNL of 45 dB, an alternative method of supplying fresh air (e.g., mechanical ventilation) should be provided. This issue should be discussed with the project mechanical engineer.

STEELWAVE (180 ECR) RESIDENTIAL MEASUREMENT LOCATIONS AND MEASURED NOISE LEVELS

FIGURE 1

Salter # 22-0009

VCS/EBM 01.26.22

APPENDIX A: FUNDAMENTAL CONCEPTS OF ENVIRONMENTAL NOISE

This section provides background information to aid in understanding the technical aspects of this report.

Three dimensions of environmental noise are important in determining subjective response. These are:

- The intensity or level of the sound
- The frequency spectrum of the sound
- The time-varying character of the sound

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or hertz (Hz). Most of the sounds, which we hear in the environment, do not consist of a single frequency, but of a broad band of frequencies, differing in level. The name of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands, which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Surprisingly, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively de-emphasizes the importance of frequency components below 1000 Hz and above 5000 Hz. This frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and at extreme high frequencies relative to the mid-range.

The weighting system described above is called "A"-weighting, and the level so measured is called the "A-weighted sound level" or "A-weighted noise level." The unit of A-weighted sound level is sometimes abbreviated "dB." In practice, the sound level is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting characteristic. All U.S. and international standard sound level meters include such a filter. Typical sound levels found in the environment and in industry are shown in **Figure A1.**

Although a single sound level value may adequately describe environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise is a conglomeration of distant noise sources, which results in a relatively steady background noise having no identifiable source. These distant sources may include traffic, wind in trees, industrial activities, etc. and are relatively constant from moment to moment. As natural forces change or as human activity follows its daily cycle, the sound level may vary slowly from hour to hour. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities such as single vehicle passbys, aircraft flyovers, etc. which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, statistical noise descriptors were developed. "L10" is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L10 is considered a good measure of the maximum sound levels caused by discrete noise events. "L50" is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period; it represents the median sound level. The "L90" is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period and is used to describe the background noise.

As it is often cumbersome to quantify the noise environment with a set of statistical descriptors, a single number called the average sound level or "L_{eq}" is now widely used. The term "L_{eq}" originated from the concept of a so-called equivalent sound level which contains the same acoustical energy as a varying sound level during the same time period. In simple but accurate technical language, the L_{eq} is the average A-weighted sound level in a stated time period. The L_{eq} is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the different response of people to daytime and nighttime noise. During the nighttime, exterior background noise levels are generally lower than in the daytime; however, most household noise also decreases at night, thus exterior noise intrusions again become noticeable. Further, most people trying to sleep at night are more sensitive to noise. To account for human sensitivity to nighttime noise levels, a special descriptor was developed. The descriptor is called the L_{dn} (Day/Night Average Sound Level), which represents the 24-hour average sound level with a penalty for noise occurring at night. The L_{dn} computation divides the 24-hour day into two periods: daytime (7:00 am to 10:00 pm); and nighttime (10:00 pm to 7:00 am). The nighttime sound levels are assigned a 10 dB penalty prior to averaging with daytime hourly sound levels.

For highway noise environments, the average noise level during the peak hour traffic volume is approximately equal to the L_{dn}.

The effects of noise on people can be listed in three general categories:

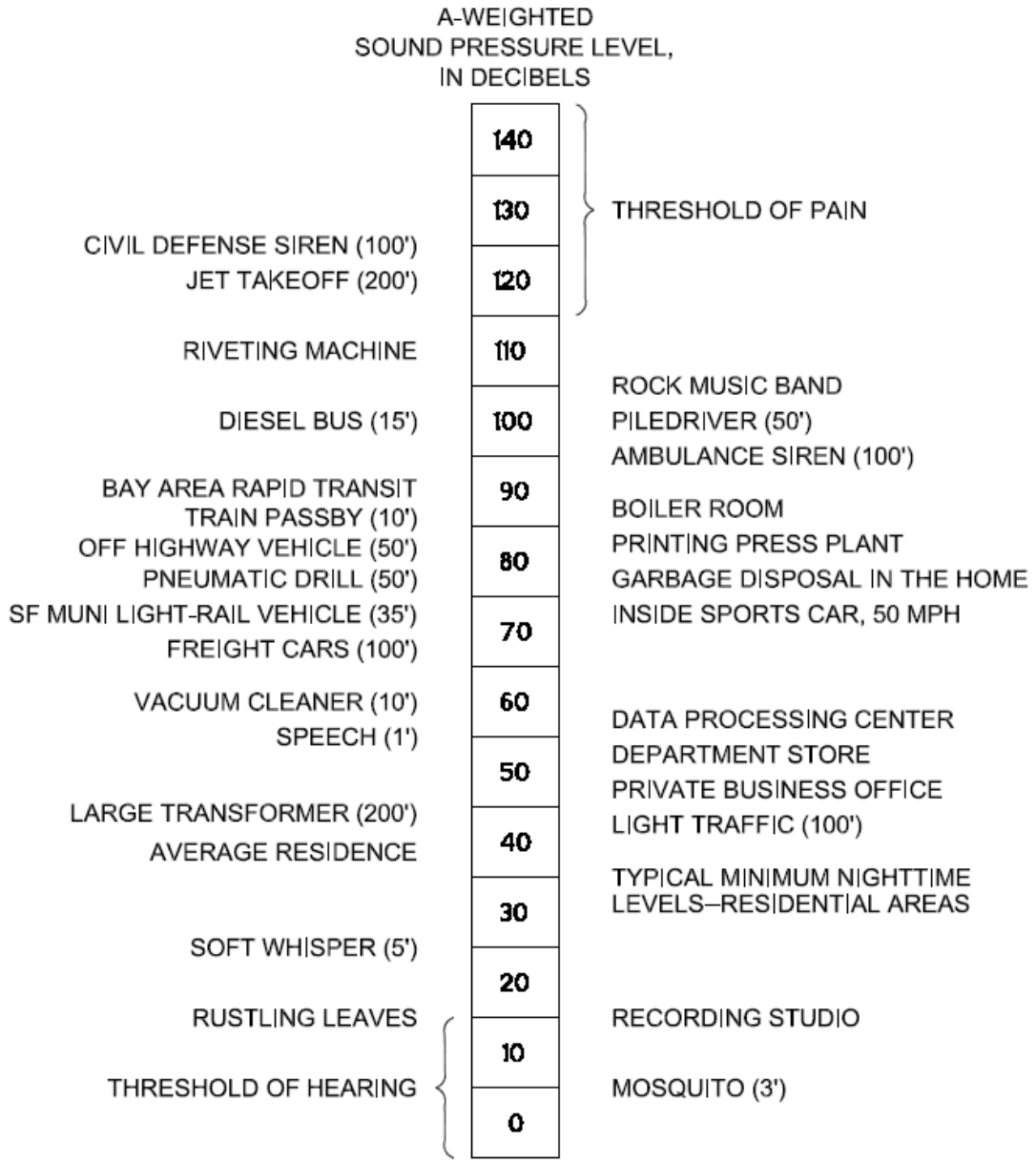
- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as startle, hearing loss

The sound levels associated with environmental noise usually produce effects only in the first two categories. Unfortunately, there has never been a completely predictable measure for the subjective effects of noise nor of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over time.

Thus, an important factor in assessing a person's subjective reaction is to compare the new noise environment to the existing noise environment. In general, the more a new noise exceeds the existing, the less acceptable the new noise will be judged.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

Except in carefully controlled laboratory experiments, a change of only 1 dB in sound level cannot be perceived. Outside of the laboratory, a 3 dB change is considered a just-noticeable difference. A change in level of at least 5 dB is required before any noticeable change in community response would be expected. A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse community response.



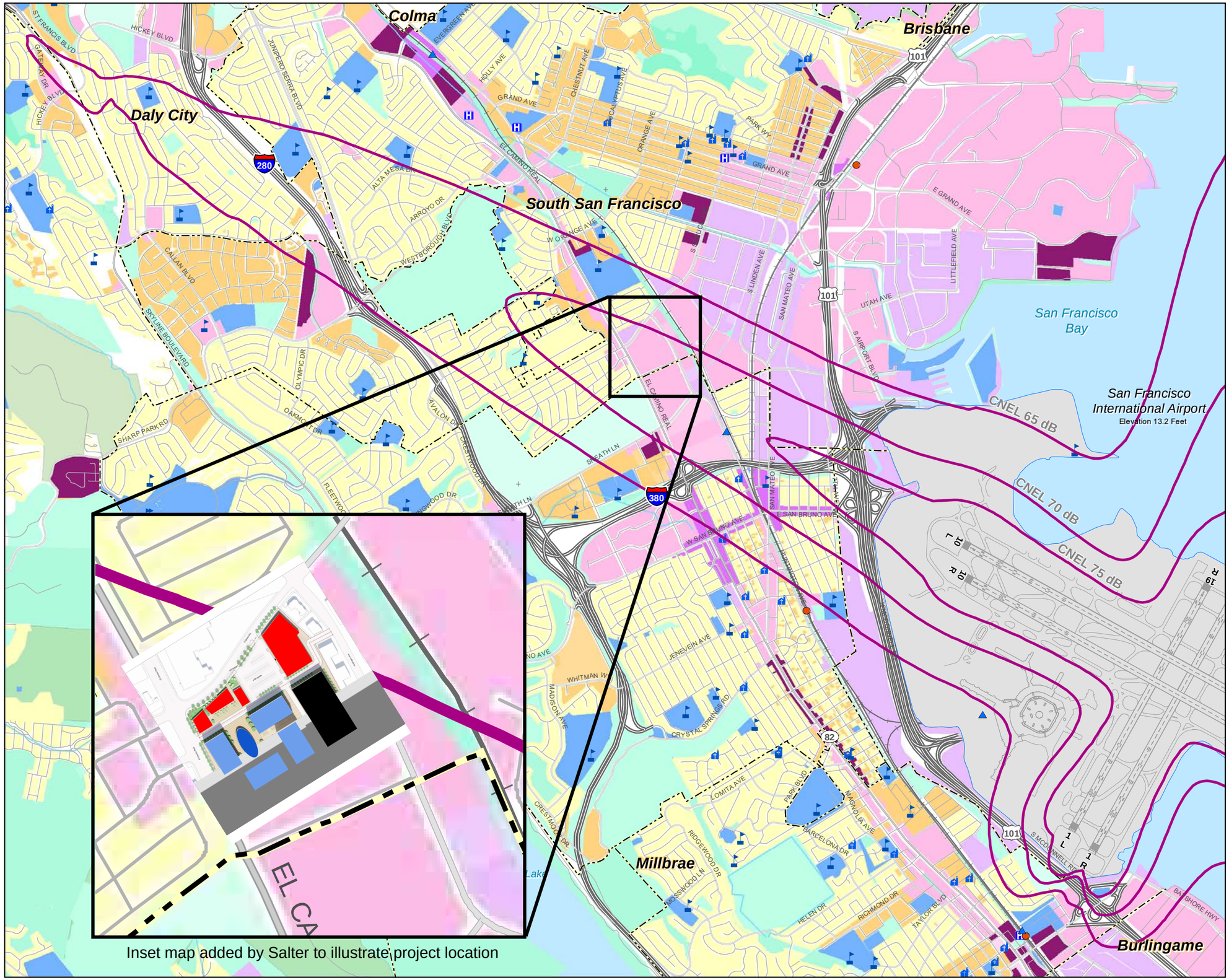
(100') = DISTANCE IN FEET BETWEEN SOURCE AND LISTENER

TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

FIGURE A1

1107 C 11.25.03

APPENDIX B: SFO ALUCP 2020 CONTOURS, WITH PROJECT SITE INDICATED



LEGEND

- CNEL Contour, 2020 Forecast
- Airport Property
- BART Station
- CALTRAIN Station
- School
- Place of Worship
- Hospital
- Municipal Boundary
- Railroad
- Freeway
- Road

Planned Land Use Per General Plans:

- Public
- Multi-Family Residential
- Single Family Residential
- Mixed Use
- Transit Oriented Development
- Commercial
- Industrial, Transportation, and Utilities
- Local Park, Golf Course, Cemetery
- Regional Park or Recreation Area
- Open Space
- Planned use not mapped

Sources:

Noise Contour Data:
- Draft Environmental Assessment, Proposed Runway Safety Area Program, San Francisco International Airport. URS Corporation and BridgeNet International, June 2011

County Base Maps:
- San Mateo County Planning & Building Department, 2007

Local Plans:
- Burlingame Bayfront Specific Area Plan, August 2006
- Burlingame Downtown Specific Plan, January 2009
- Burlingame General Map, September 1984
- North Burlingame/ Rollins Road Specific Plan, February 2007
- Colma Municipal Code Zoning Maps, December 2003
- Daly City General Plan Land Use Map, 1987
- Hillsborough General Plan, March 2005
- Millbrae Land Use Plan, November 1998
- Pacifica General Plan, August 1996
- San Bruno General Plan, December 2008
- San Mateo City Land Use Plan, March 2007
- San Mateo County Zoning Map, 1992
- South San Francisco General Plan, 1998

NORTH

0 0.1 0.2 0.4 Miles

Exhibit IV-6

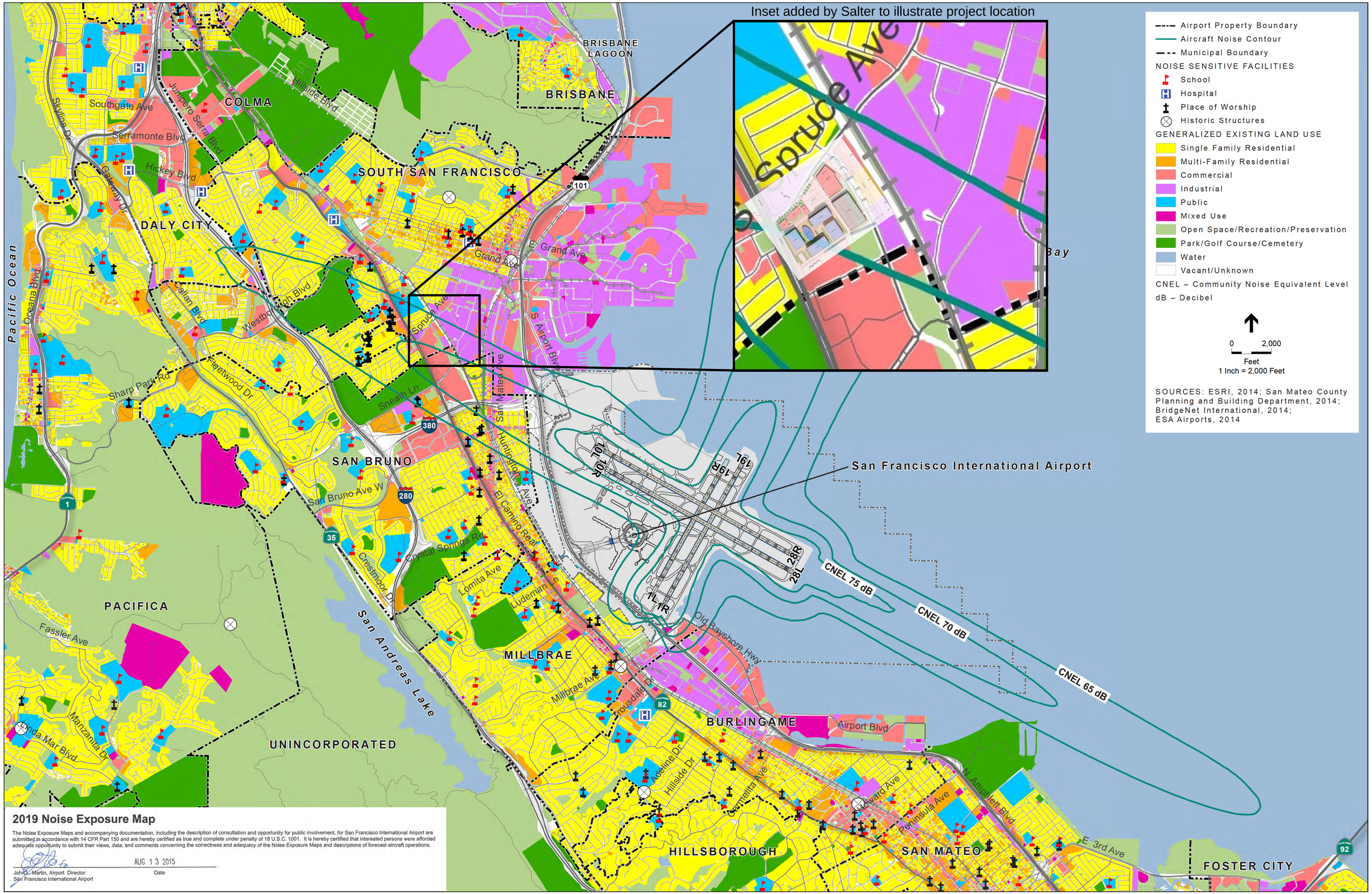
NOISE COMPATIBILITY ZONES -- DETAIL

Comprehensive Airport Land Use Plan
for the Environs of San Francisco International Airport

C/CAG

City/County Association of Governments
of San Mateo County, California

APPENDIX C: 2019 SFO PART 150 NOISE CONTOUR MAP, WITH PROJECT SITE INDICATED



2019 Noise Exposure Map

The Noise Exposure Maps and accompanying documentation, including the description of consultation and opportunity for public involvement, for San Francisco International Airport are submitted in accordance with 14 CFR Part 150 and are hereby certified as true and complete under penalty of 18 U.S.C. 1001. It is hereby certified that interested persons were afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the Noise Exposure Maps and descriptions of forecast aircraft operations.

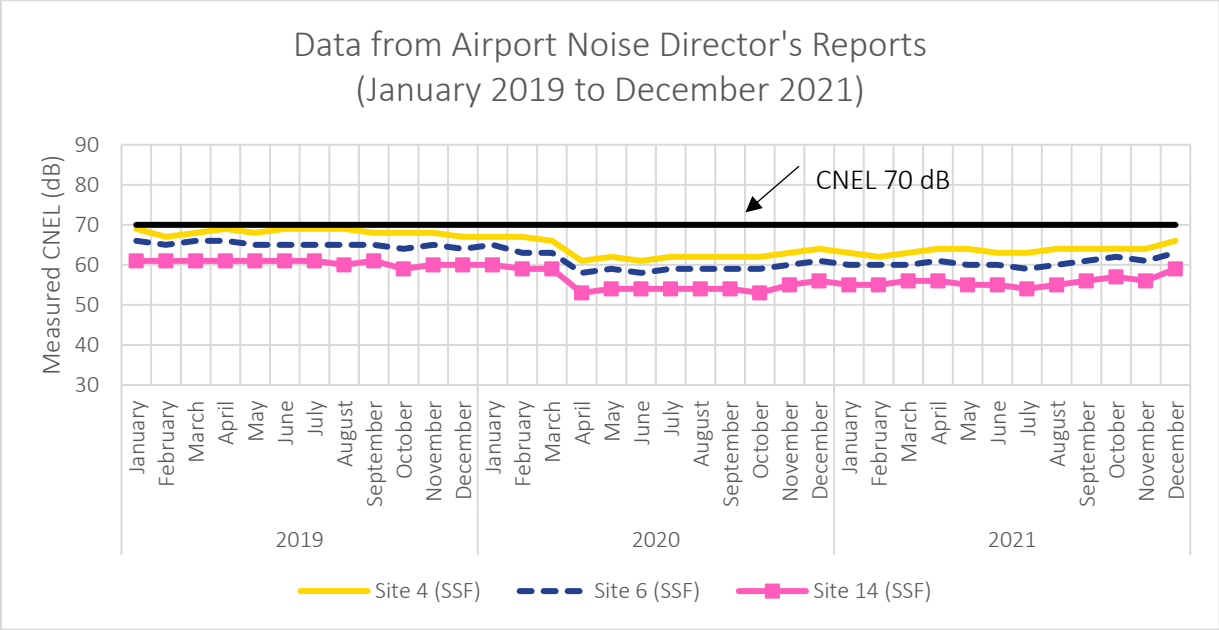
John L. Martin, Airport Director
San Francisco International Airport

AUG 13 2015
Date

APPENDIX D: DECEMBER 2019 AIRPORT DIRECTOR'S REPORT, WITH PROJECT SITE AND NEARBY MONITORS INDICATED

Monthly Noise Monitor Data from Historical Airport Director's Reports[12]

The following noise monitors (Monitors 4, 6, and 14) appear to be closest to the site at 180 El Camino Real.



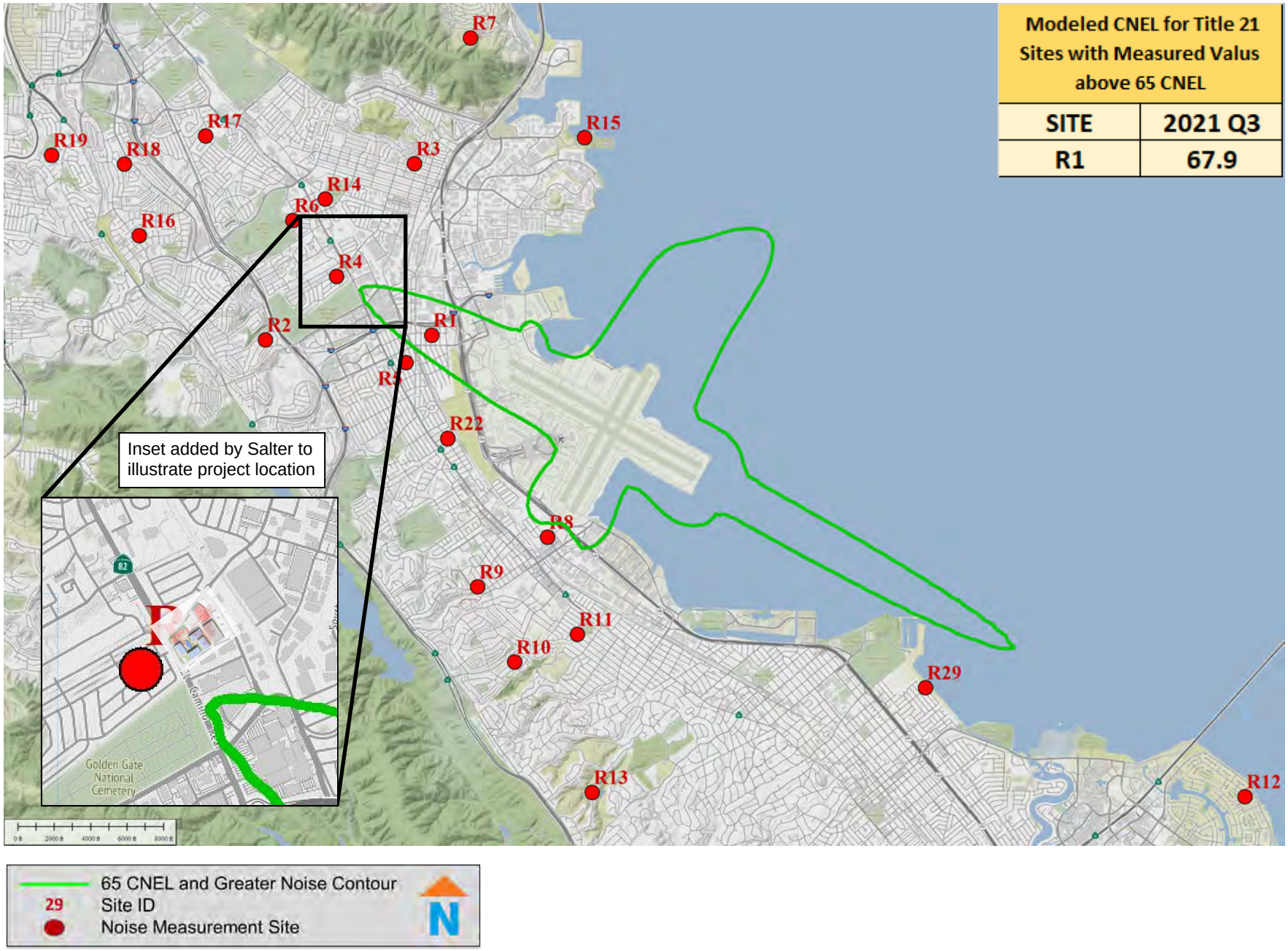
[12] Accessed from https://www.flysfo.com/community/noise-abatement/reports-and-resources/airport-directors-report

The table below summarizes noise levels from December 2021 to January 2019 at the three locations closest to the 180 El Camino Real site. Noise levels were below 70 dB at all locations at all times.

Year	Month	Aircraft CNEL (dBA) from Directors Reports		
		Site 4 (SSF)	Site 6 (SSF)	Site 14 (SSF)
2021	December	69	66	61
	November	67	65	61
	October	68	66	61
	September	69	66	61
	August	68	65	61
	July	69	65	61
	June	69	65	61
	May	69	65	60
	April	68	65	61
	March	68	64	59
	February	68	65	60
	January	67	64	60
2020	December	67	65	60
	November	67	63	59
	October	66	63	59
	September	61	58	53
	August	62	59	54
	July	61	58	54
	June	62	59	54
	May	62	59	54
	April	62	59	54
	March	62	59	53
	February	63	60	55
	January	64	61	56
2019	December	63	60	55
	November	62	60	55
	October	63	60	56
	September	64	61	56
	August	64	60	55
	July	63	60	55
	June	63	59	54
	May	64	60	55
	April	64	61	56
	March	64	62	57
	February	64	61	56
	January	66	63	59

See the following figure for the 2021 3rd Quarter CNEL Project Site Overlay.

Figure 1
Noise Contour Map (2021 Q3)
Source: AEDT version 3c



Modeled CNEL for Title 21 Sites with Measured Valus above 65 CNEL	
SITE	2021 Q3
R1	67.9

Airport Director's Report

Presented at the August 5, 2020
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
December 2019

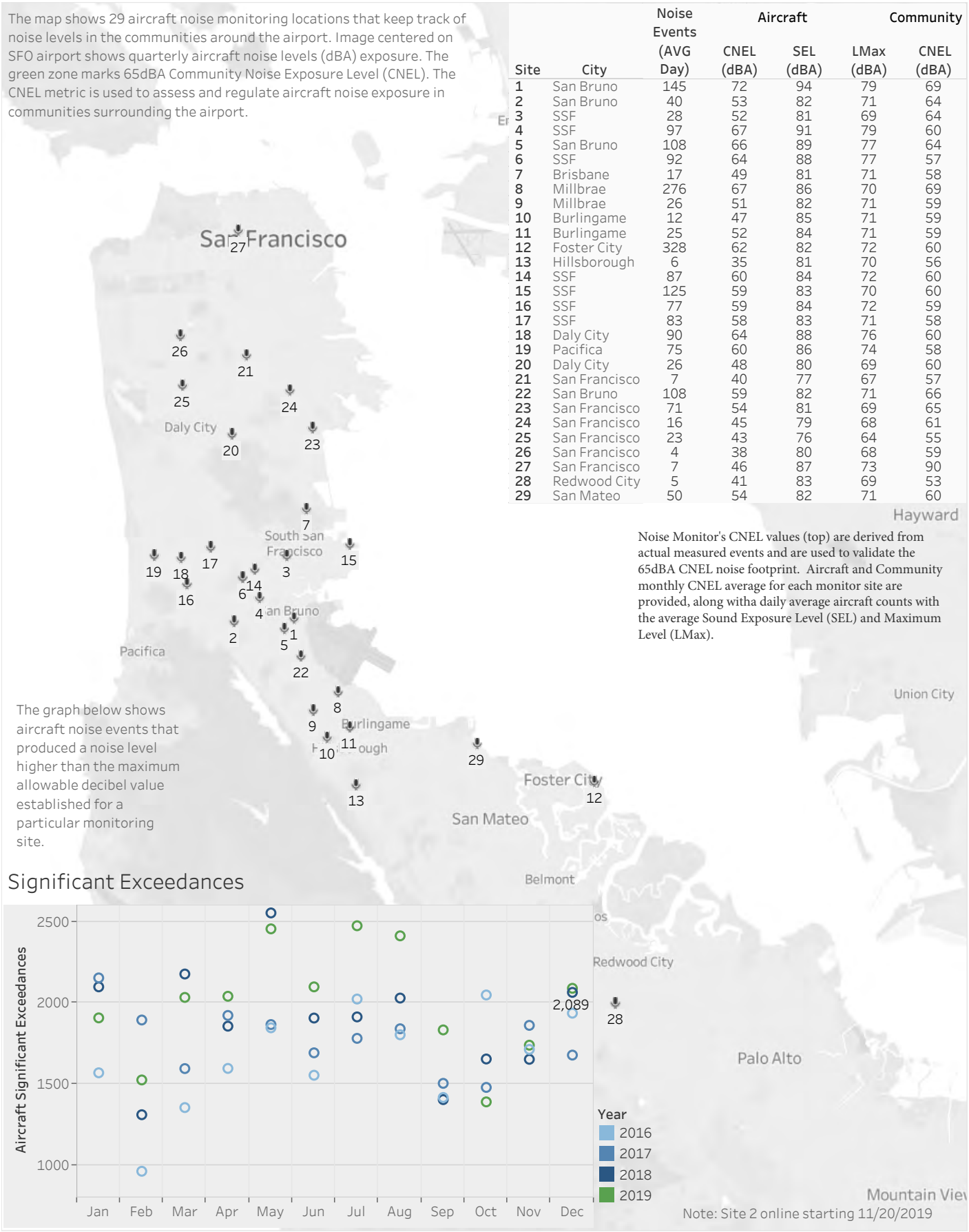
SFO San Francisco International Airport

Aircraft Noise Levels

December 2019

The map shows 29 aircraft noise monitoring locations that keep track of noise levels in the communities around the airport. Image centered on SFO airport shows quarterly aircraft noise levels (dBA) exposure. The green zone marks 65dBA Community Noise Exposure Level (CNEL). The CNEL metric is used to assess and regulate aircraft noise exposure in communities surrounding the airport.

		Noise Events	Aircraft			Community
Site	City	(AVG Day)	CNEL (dBA)	SEL (dBA)	LMax (dBA)	CNEL (dBA)
1	San Bruno	145	72	94	79	69
2	San Bruno	40	53	82	71	64
3	SSF	28	52	81	69	64
4	SSF	97	67	91	79	60
5	San Bruno	108	66	89	77	64
6	SSF	92	64	88	77	57
7	Brisbane	17	49	81	71	58
8	Millbrae	276	67	86	70	69
9	Millbrae	26	51	82	71	59
10	Burlingame	12	47	85	71	59
11	Burlingame	25	52	84	71	59
12	Foster City	328	62	82	72	60
13	Hillsborough	6	35	81	70	56
14	SSF	87	60	84	72	60
15	SSF	125	59	83	70	60
16	SSF	77	59	84	72	59
17	SSF	83	58	83	71	58
18	Daly City	90	64	88	76	60
19	Pacifica	75	60	86	74	58
20	Daly City	26	48	80	69	60
21	San Francisco	7	40	77	67	57
22	San Bruno	108	59	82	71	66
23	San Francisco	71	54	81	69	65
24	San Francisco	16	45	79	68	61
25	San Francisco	23	43	76	64	55
26	San Francisco	4	38	80	68	59
27	San Francisco	7	46	87	73	90
28	Redwood City	5	41	83	69	53
29	San Mateo	50	54	82	71	60



Noise Monitor's CNEL values (top) are derived from actual measured events and are used to validate the 65dBA CNEL noise footprint. Aircraft and Community monthly CNEL average for each monitor site are provided, along witha daily average aircraft counts with the average Sound Exposure Level (SEL) and Maximum Level (LMax).

The graph below shows aircraft noise events that produced a noise level higher than the maximum allowable decibel value established for a particular monitoring site.

Significant Exceedances

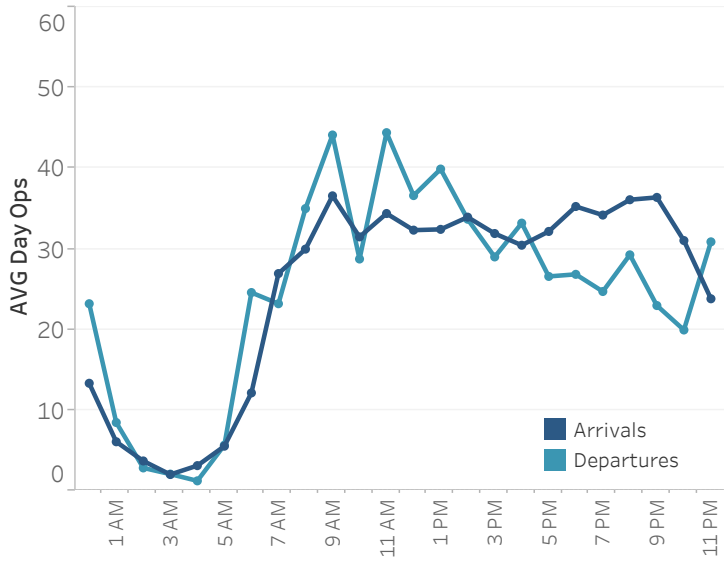
Note: Site 2 online starting 11/20/2019

Operations

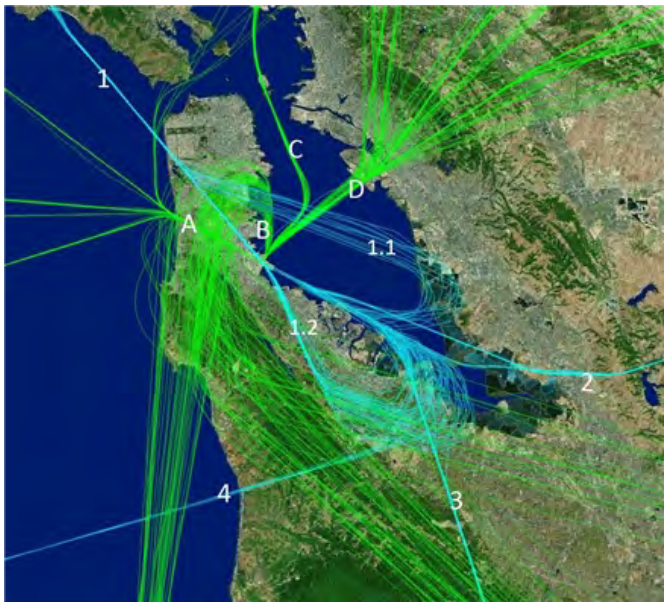
December 2019

Monthly Ops	AVG Daily Ops	12 Month AVG	YOY Growth
36,814	1,188	37,764	

December 2019 Average Day (Hourly)



Major Arrival and Departure Routes (West Flow)



West Flow is depicted in the above image and is a predominate flow at SFO.

Top Destinations

Los Angeles	Seattle	Las Vegas
7%	4%	4%

Down the Bay vs Peninsula

1.1 BDEGA East	25%
1.2 BDEGA West	75%

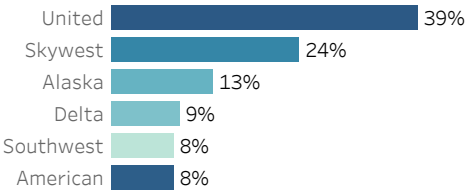
Arrival Route

1. BDEGA
2. DYAMD
3. SERFR
4. OCEANIC

Departure Route

A. GAP	
B. SSTIK	
C. NIITE	8%
D. TRUKN RWY 01	41%
D. TRUKN RWY 28	0%

Airlines with the Most Operations



Non Airline

6%

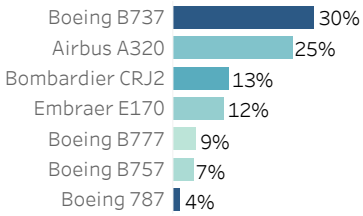
Narrow Body

79%

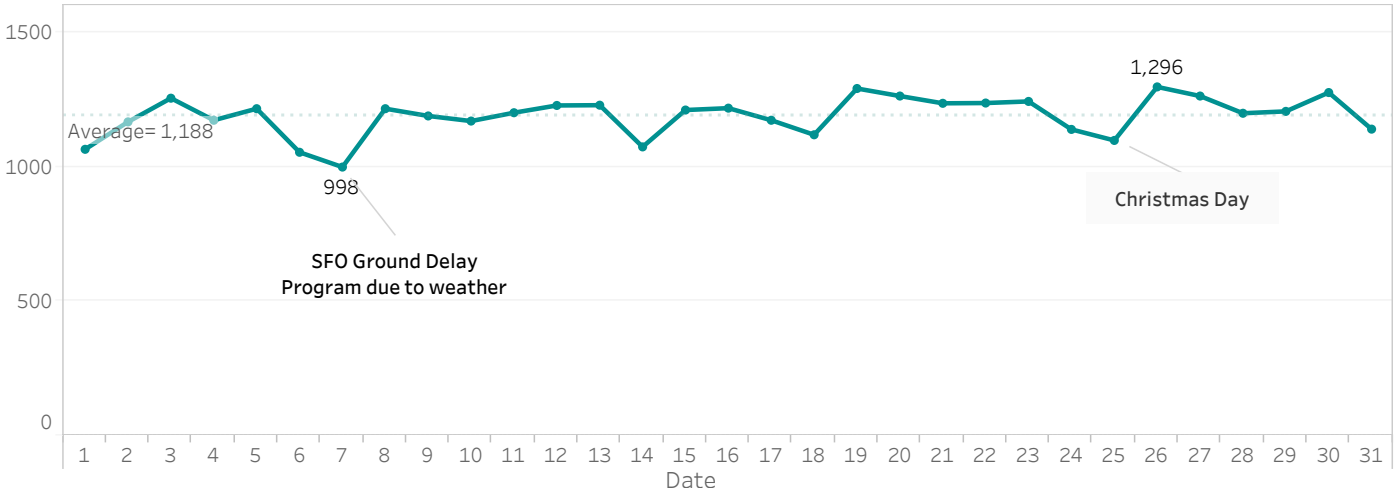
Wide Body

16%

Most Utilized Aircraft Types



Daily Aircraft Operations



Runway Usage and Nighttime Operations

Monthly Runway usage is shown for arrivals and departures, futher categorized by all hours and nighttime hours. Graph at the bottom of the page shows hourly nighttime operations for each day. Power Runup locations are depicted on the airport map with airlines nighttime power runup counts shown below. Percent [%] is rounded to the nearest whole number.

Runway Utilization

	Arrivals	Departures
01 L/R		66% 11,705
10 L/R	1% 194	19% 3,407
19 L/R	18% 3,261	1% 150
28 L/R	80% 14,188	13% 2,373

Late Night Preferential Runway Use (1 am - 6 am)

	Departures
10 L/R	39% 200
01 L/R	41% 208
28 L/R	20% 99

Runway Utilization

Arrivals

28L	28R
45%	55%

Night (10pm-7am)

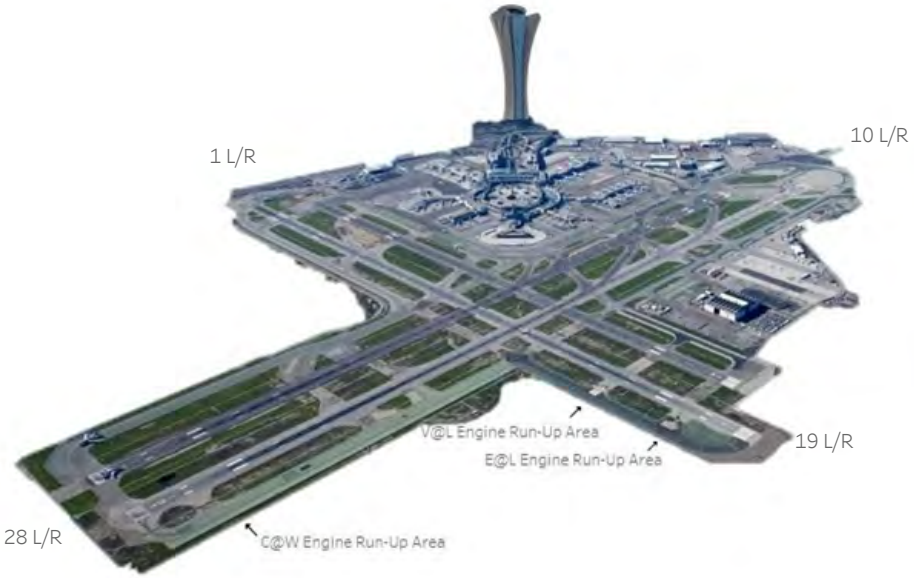
32%	68%

Nighttime Power Run-Ups

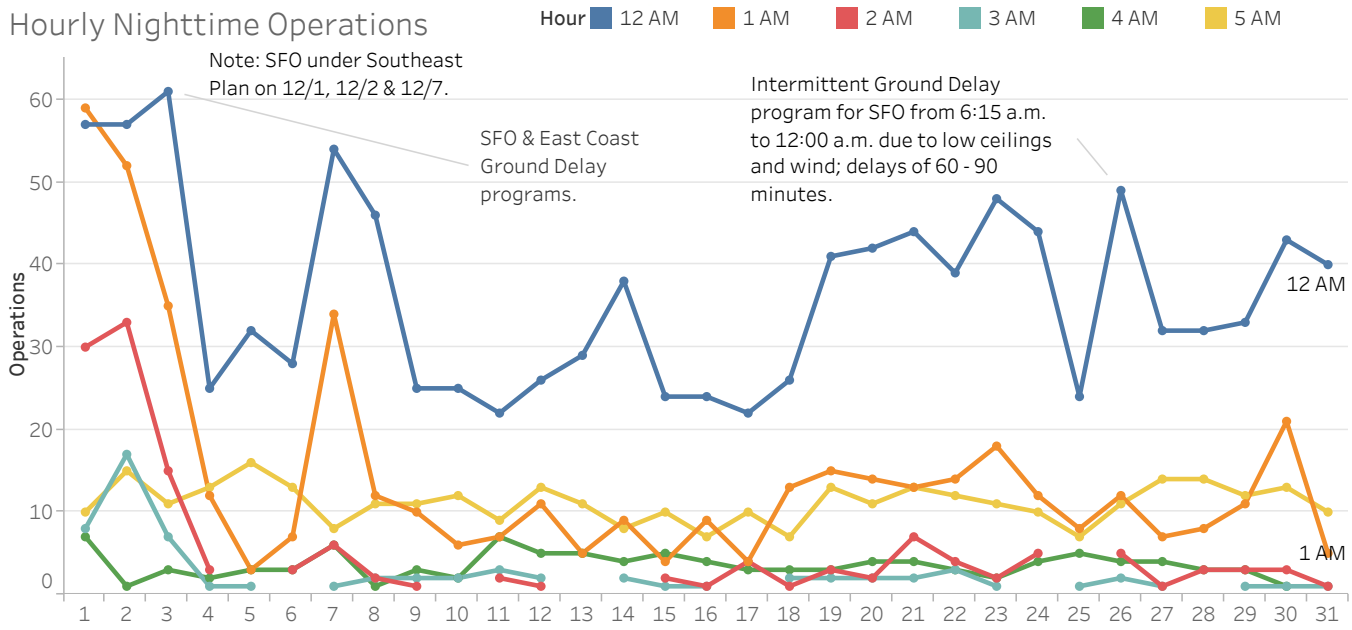
10pm-7am

Alaska Airlines	7
American Airlines	6
United Airlines	8

A power runup is a procedure used to test an aircraft engine after maintenance is completed. This is done to ensure safe operating standards prior to returning the aircraft to service. The Aircraft power settingsrange from idle to full power and may vary in duration.



Hourly Nighttime Operations



Noise Reports

Noise Reporters / Noise Reports

Roundtable	Atherton	5	998
	Belmont	5	194
	Brisbane	24	1,468
	Burlingame	5	77
	Daly City	12	1,057
	El Granada	2	1,073
	Foster City	12	551
	Half Moon Bay	2	9
	Menlo Park	22	1,930
	Millbrae	7	39
	Montara	1	364
	Moss Beach	1	6
	Pacifica	25	3,205
	Portola Valley	26	6,994
	Redwood City	17	1,477
	San Bruno	7	113
	San Carlos	1	34
	San Francisco	44	5,593
	San Mateo	24	1,035
	South San Fra..	10	155
	Woodside	9	2,887
Other	Alameda	5	106
	Aptos	6	241
	Ben Lomond	3	16
	Berkeley	14	3,240
	Bonny Doon	2	27
	Boulder Creek	7	123
	Brookdale	1	1
	Capitola	14	1,361
	Carmel Valley	2	26
	Castro Valley	1	1
	Cupertino	1	1,536
	Danville	2	32
	East Palo Alto	2	47
	Emerald Hills	8	2,600
	Felton	7	370
	Fremont	1	309
	Hayward	1	355
	Kensington	1	3
	La Selva Beach	1	5
	Lafayette	1	1
	Los Altos	95	13,459
	Los Altos Hills	23	8,612
	Los Gatos	86	10,196
	Moraga	4	552
	Morgan Hill	2	27
	Mountain View	30	3,053
	Oakland	31	7,491
	Orinda	3	36
	Palo Alto	157	34,551
	Penngrove	1	11
	Richmond	6	4,037
	San Jose	1	1
	Santa Cruz	94	14,101
	Saratoga	2	218
	Scotts Valley	59	6,189
	Soquel	56	8,744
	Stanford	4	791
	Sunnyvale	8	788
	Watsonville	1	193
Grand Total		**1,004**	**152,709**

Reporters Annual AVG

1,138

Reports Annual AVG

177,683

New Reporters

74

New Reporters Top City

San Francisco

Furthest Report

88 miles

Reports per SFO Operation

4

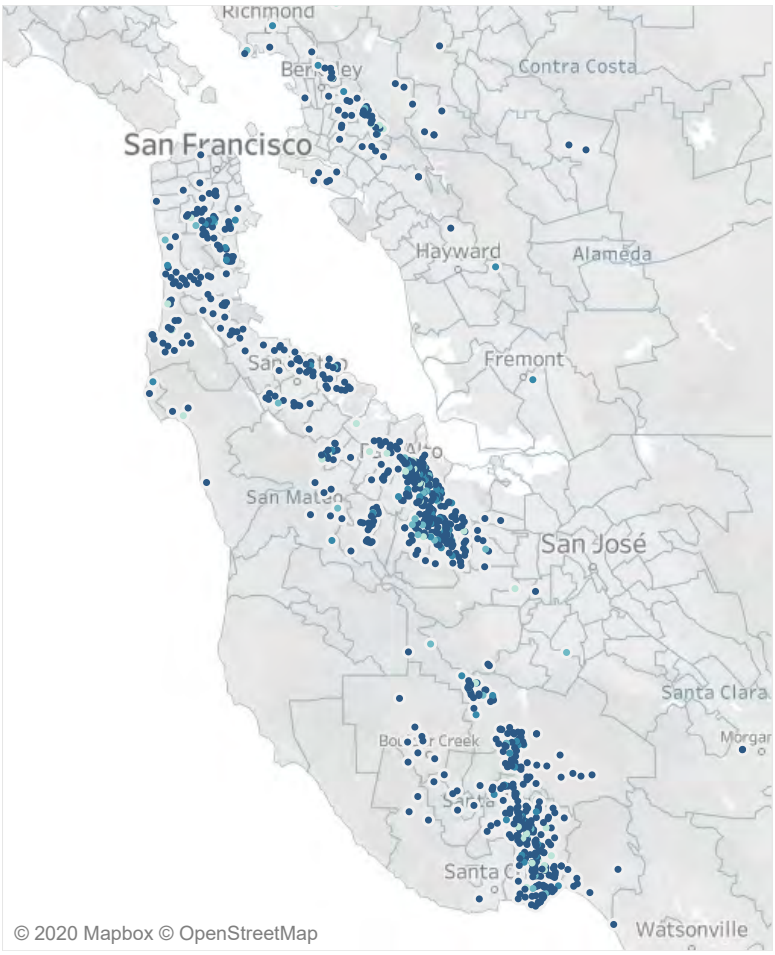
Top Aircraft Types

B737
A320
E75L

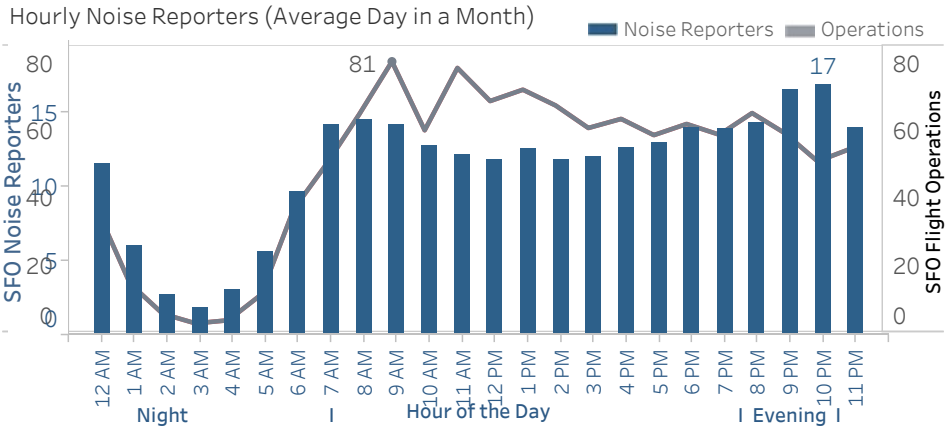
Top Flight Numbers

UAL2201
ASA945
ASA1969

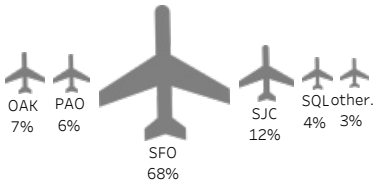
Noise Reporters Location Map



Hourly Noise Reporters (Average Day in a Month)



Airports



99% of noise reports correlate to a origin/destination airport.

Notes: Address validation Relies on USPS-provided ZIP Code look up table and USPS-specified default city values.

Source: SFO Intl Airport Noise Monitoring System

Williams Aviation Consultants

Airspace and Safety Analysis - 180 El Camino Real, South San Francisco, CA

Williams Aviation Consultants, Inc. (WAC) was retained by El Camino SSF, LLC c/o Steelwave, LLC to complete an obstruction evaluation and airspace analysis of a study area located at 180 El Camino Real, South San Francisco, CA ***(Figure 1)***. The study area is located NW of San Francisco International Airport (SFO). The proposed project includes three 6-Story R&D Buildings and a proposed residential building. The 6-story buildings have an overall height of approximately 155' Above Mean Sea Level (AMSL), and the residential building has an overall height of approximately 132' AMSL.

The purpose of the analysis was to determine the maximum elevation to which a structure can be erected at the study area without having an adverse effect upon the safe and efficient use of the navigable airspace. The proposed study area's location in relation to San Francisco International Airport (SFO) is shown in ***Figure 2***.

Figure 1 – Study Area

Figure 2 – Study Area Location

FAA Review Process

The FAA utilizes the criteria contained in CFR Part 77 to determine reporting requirements, the impact of a proposed structure on navigable airspace, and whether the structure, if constructed, will require lighting and/or marking.

CFR Part 77 defines the criteria for determining if a structure will require reporting to the FAA, if the structure exceeds the stated criteria and requires the submittal of FAA Form 7460-1, and/or whether or not the structure has an impact on navigable airspace.

If the FAA determines that there is an impact to navigable airspace, a Notice of Presumed Hazard (NPH) will be issued and an aeronautical study will be conducted. Concurrent with the NPH the project is distributed to the FAA divisions having the responsibility for air traffic control, flight procedures, airport infrastructure and navigational aids. Each of these divisions then evaluates the project for impacts within their area of jurisdiction. These divisions submit their comments to the Air Traffic division who will issue a determination.

If the FAA determines that the proposed structure has a substantial adverse impact, they will issue a Determination of Hazard. In some cases, they will offer the project proponent options to mitigate the adverse impact, i.e., lower the structure, redesign etc.

It is not uncommon for the FAA's initial analysis to disregard factors unique to a specific airport such as existing structures or special procedures that have been developed for that airport.

Once the FAA's initial analysis is complete, additional data can be presented to the FAA for their consideration which may result in the approval of the proposed structure.

WAC Analysis

The WAC airport and airspace compatibility analysis includes a review of the following criteria to determine possible adverse impacts to aeronautical operations:

1. Public and private airports in the vicinity of the proposed structure.
2. Federal Aviation Regulation Part 77, Objects Affecting Navigable Airspace.
3. Terminal Instrument Procedures (TERPS) including instrument approach and departure procedures.
4. Visual Flight Rule (VFR) Traffic Pattern Airspace.
5. One Engine Inoperative (OEI) Criteria
6. Airport Land Use Compatibility Plan (ALUCP) Safety Compatibility Zones

Public/Private Airports:

San Francisco International Airport (SFO) Runway 10L is located approximately 1.61 Nautical Miles (NM) SE of the study area ***(Figure 3).*** San Francisco International Airport (SFO) is a public use, public-owned airport located within the City of San Francisco, CA. The airport currently maintains four runways; Runway 10L/28R with a length of 11,870 feet, Runway 10R/28L with a length of 11,381 feet, Runway 1R/19L with a length of 8,650 feet, and Runway 1L/19R with a length of 7,650 feet.

An in-depth analysis of SFO was conducted to determine possible impacts on navigable airspace, flight procedures, and determine the maximum achievable structure elevation which will not adversely impact aeronautical operations.

Figure 3 – Study Area Distance to Runway 10L

CFR Part 77 Analysis

CFR Part 77 Notice Requirements and Obstruction Standards

An analysis of CFR Part 77 Notice Requirements was conducted and it was determined that the proposed project would require formal submission to the FAA.

An analysis of CFR Part 77 Obstruction Standards was completed to determine the maximum Above Mean Sea Level (AMSL) elevation to which a structure could be erected without exceeding CFR Part 77 Civil Airport Imaginary Surfaces ***(Figure 4).*** As stated in FAA Order 7400.2 Procedures for Handling Airspace Matters paragraph 6-3-9b:

"Obstruction standards are used to identify potential adverse effects and are not the basis for a determination. The criteria used in determining the extent of adverse affect are those established by the FAA to satisfy operational, procedural, and electromagnetic requirements. These criteria are contained in regulations, advisory circulars, and orders (e.g., the 8260 Order series and Order 7110.65). Obstruction evaluation personnel must apply these criteria in evaluating the extent of adverse effect to determine if the structure being studied would actually have a substantial adverse effect and would constitute a hazard to air navigation."

CFR Part 77 Obstruction Standards is not used to determine if a structure will be a hazard to air navigation, rather, structures exceeding these criteria are studied closely by the FAA to determine if the structure will require mitigation or if the structure will impact terminal instrument procedures or visual flight rule traffic pattern airspace. Generally, a structure that exceeds CFR Part 77

Obstruction Standards will require mitigation such as lighting and/or marking in order to make it more conspicuous to airmen.

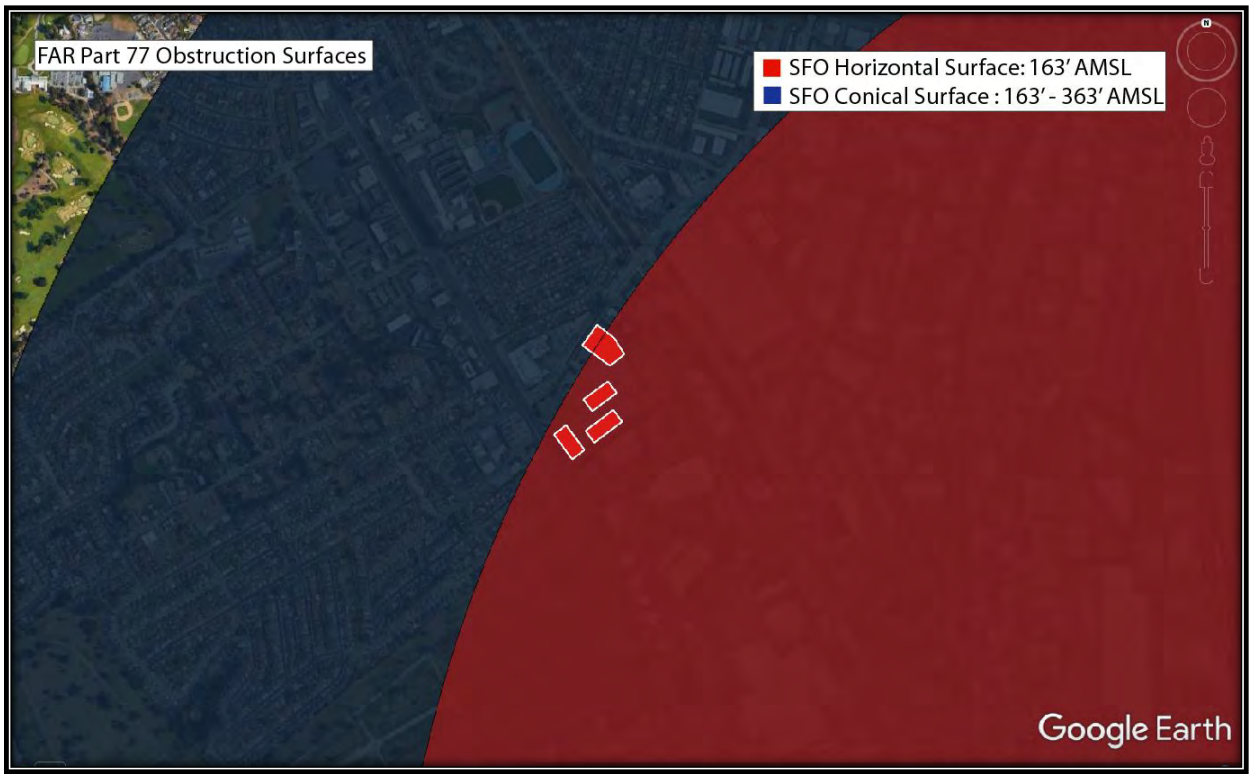


Figure 4 - SFO Civil Airport Imaginary Surfaces

Conclusion: The majority of the study area is located within the 163' Above Mean Sea Level (AMSL) Horizontal Surface for SFO. A small portion of the proposed residential building is located within the Conical Surface for SFO. This Conical Surface has an increasing slope of 20:1.

A penetration to Obstruction Standards does not mean the structure will have an adverse impact to operations, rather the airport's specific procedures, such as Instrument Approach/Departure and VFR Traffic Pattern procedures, must be studied to determine if the specific procedures will be impacted.

The FAA may require an obstruction exceeding Obstruction Standards to be lighted in accordance with FAA Advisory Circular 70/7460-1L to make it more conspicuous to airmen.

Terminal Instrument Procedures (TERPS)

An analysis of the Terminal Instrument Procedures (TERPS) criteria was completed to determine the maximum elevation to which a structure could be erected without impacting SFO instrument approach and departure procedures.

Instrument Approach Procedures

A penetration to the Obstacle Clearance Surfaces (OCS) by a proposed structure would result in the need to increase the procedure's Minimum Descent Altitude (MDA) (the lowest altitude that a pilot can descend on an approach) and would likely receive a Hazard Determination from the FAA.

SFO Instrument Arrival Procedures

A review of SFO's Instrument Approach Procedures (IAP) revealed that the approaches for aircraft landing on Runways 10L/R have the lowest Obstacle Clearance Surfaces (OCS) over the study area.

Figures 5 through 10 display the OCS associated with Instrument Approach Procedure's (IAP) to SFO RWY 10L/R.

Figure 5 – LNAV RWY 10L

Figure 6 – LNAV RWY 10R

Figure 7 – RNP 0.30 DA RWY 10R

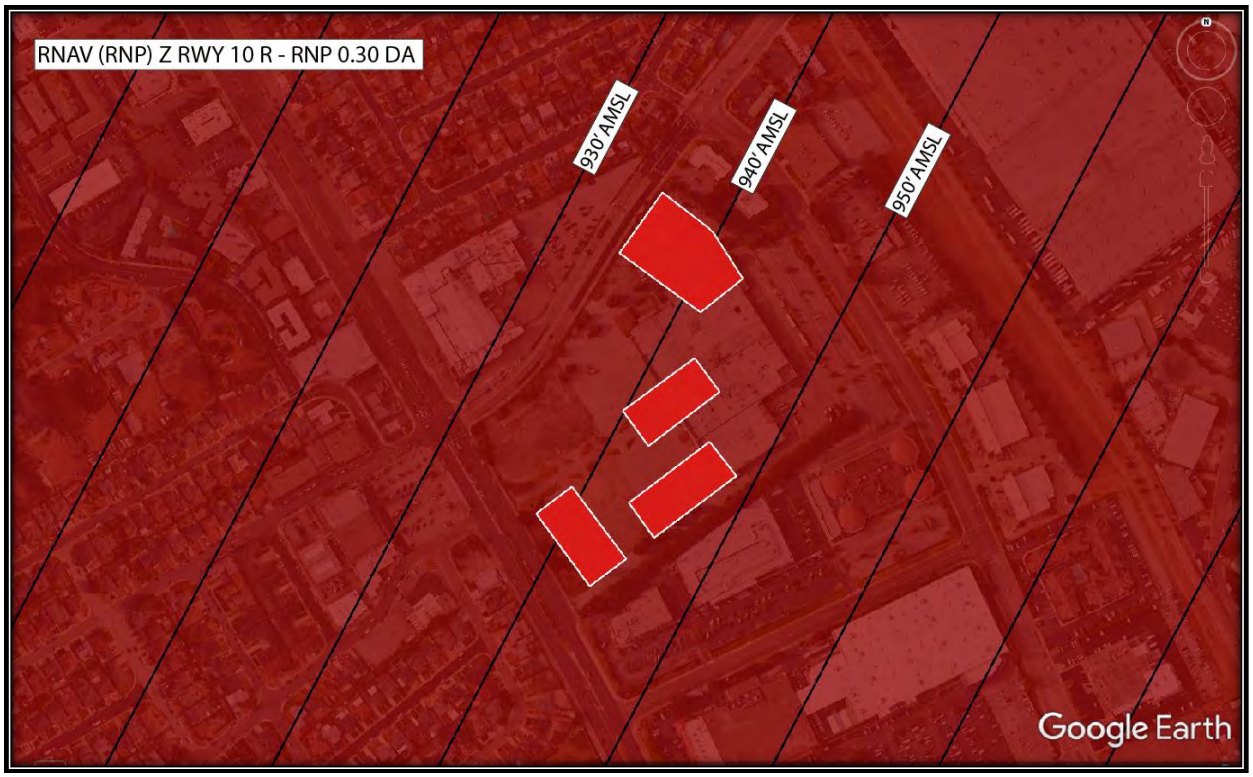


Figure 8 – RNP 0.30 DA RWY 10R Missed Approach AMSL Elevations

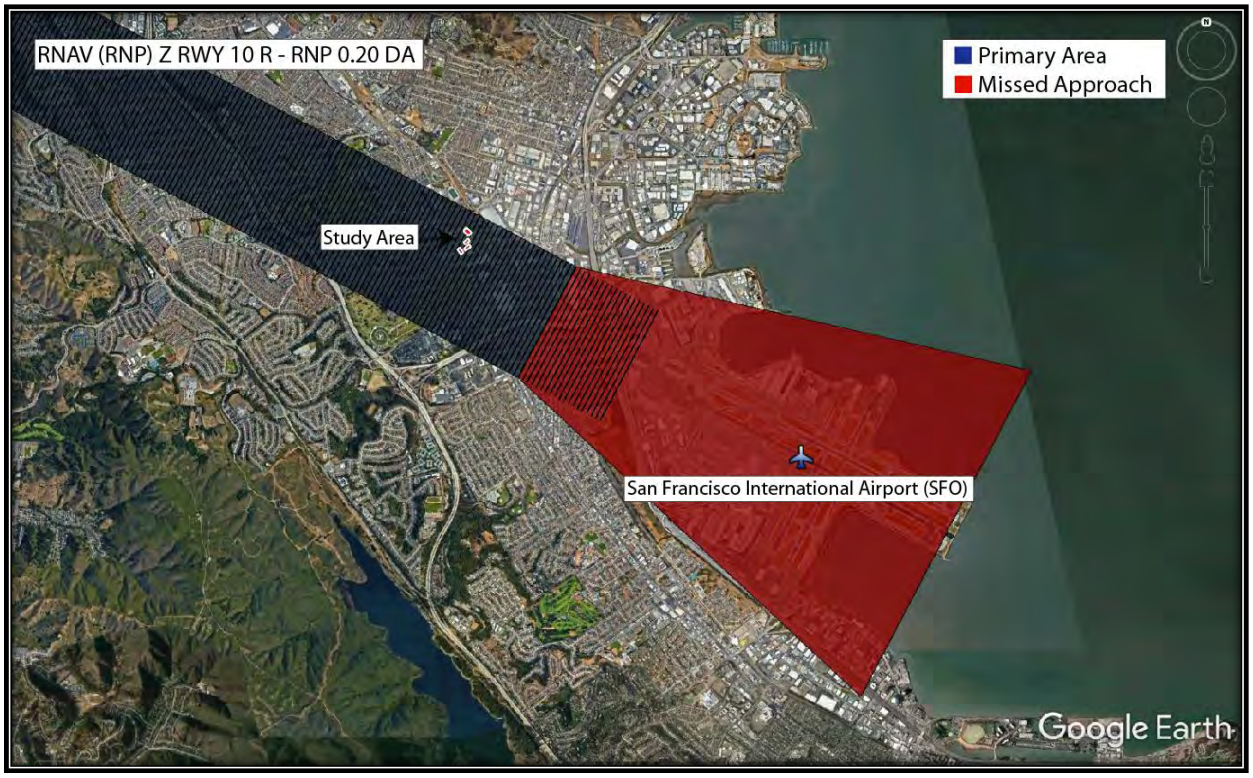


Figure 9 – RNP 0.20 DA RWY 10R

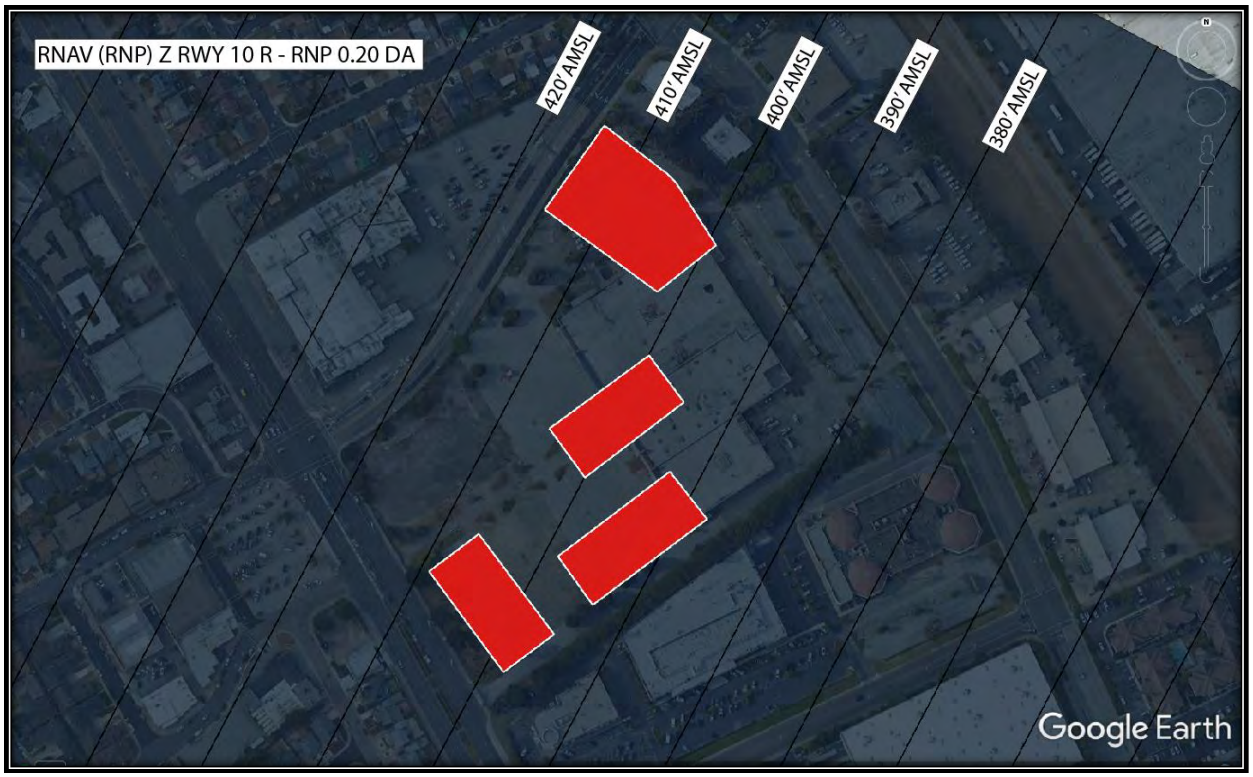


Figure 10 – RNP 0.20 DA RWY 10R AMSL Elevations

Conclusion: The maximum height over the study area, without affecting IAP to SFO, is approximately 385' AMSL to the SE and approximately 415' AMSL to the NW.

Circle-to-Land Instrument Approach Procedure

Each instrument approach procedure to SFO contain a circle-to-land option. The circle-to-land portion of the procedure allows a pilot to approach the airport in instrument conditions then, once he has the airport environment in sight, the pilot can maneuver the aircraft to the opposite end of the runway to land. A pilot would execute this type of instrument approach procedure if the winds were not favorable for landing on the primary runway for which the procedure was designed.

The surfaces which protect the circle-to-land consist of horizontal circular surfaces which extend from the end of each runway. The radius of each circle is dependent on the category of aircraft utilizing the circle-to-land approach.

Figure 11 displays an overview of the lowest OCS associated with the Circle-to-Land Category B Approach to SFO.

Figure 11 – SFO Circle-to-Land Category B

Conclusion: The maximum height over the study area, without affecting Circle-to-Land to SFO, is 660' AMSL.

Visual Flight Rule (VFR) Traffic Pattern Airspace

An analysis of SFO's VFR Traffic Pattern Airspace was completed to determine the maximum elevation to which a structure could be erected without impacting aircraft operating in visual conditions at SFO. A structure that exceeds VFR Part 77 Obstruction Standards (as applied to visual approach runways) could have an impact on aircraft operating in an airport's VFR Traffic Pattern.

Figure 12 displays the elevation to which a structure could be erected without penetrating SFO VFR Traffic Pattern Airspace.

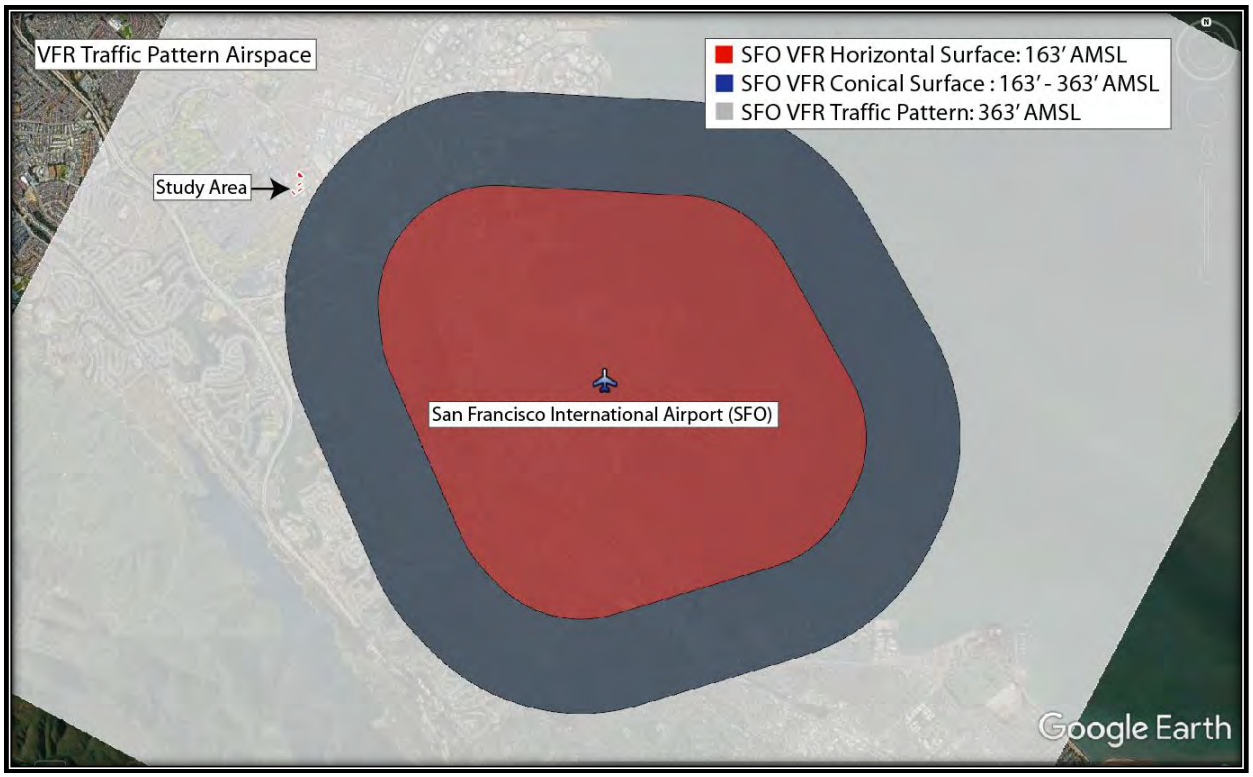


Figure 12 - SFO VFR Traffic Pattern Airspace

Conclusion: The maximum height over the study area, without affecting the VFR Traffic Pattern to SFO is 363' AMSL.

Obstacle Departure Procedures

The OCS associated with SFO's published departure procedures were analyzed. A penetration to the Departure procedure Initial Climb Area (ICA) could result in the need for the departure procedure to be modified.

Figures 13 and 14 display an overview of the ICA for SFO RWY 28R Departure.

Figure 13 - SFO RWY 28R ICA

Figure 14 - SFO RWY 28L ICA AMSL Elevations

Conclusion: The maximum height over the study area, without affecting the RWY 28R Departure ICA is approximately 247' AMSL to the SE and approximately 263' AMSL to the NW.

One Engine Inoperative (OEI)

All commercial airlines are required to develop OEI procedures for each airport / runway out of which they conduct flight operations. The Federal Aviation Regulations (FARs) prescribe that in the event of an engine failure on takeoff, commercial air carrier type aircraft must be loaded in such a manner that they are able to clear obstacles along their intended route of flight by either 35 feet vertically or 300 feet laterally.

It is the airlines responsibility that in an event of an engine failure on takeoff, commercial air carrier type aircraft must be loaded in such a manner that they are able to clear obstacles along their intended route of flight. Also, the FAA has stated they do not consider OEI departure splay paths in their analysis. OEI Departure Splay Paths should not be used to determine the maximum achievable building heights over the property.

Figure 15 displays the SFO OEI Splay Path off Runways 28R/L. The SFO iALP Single Point Analysis Tool was used to determine the maximum heights allowed at the study area. ***Figure 16*** shows the maximum OEI heights at the 4 study locations without exceeding the SFO iALP online tool.

Figure 15 – OEI Splay over Study Area

Figure 16 – SFO iALP OEI Max Heights

Conclusion: The proposed 155' AMSL R & D 6-Story Buildings, and the proposed 132' AMSL Residential Building will not exceed the SFO OEI Maximum Heights.

Safety Compatibility Policies

Figure 17 displays the Safety Compatibility Zones for SFO.

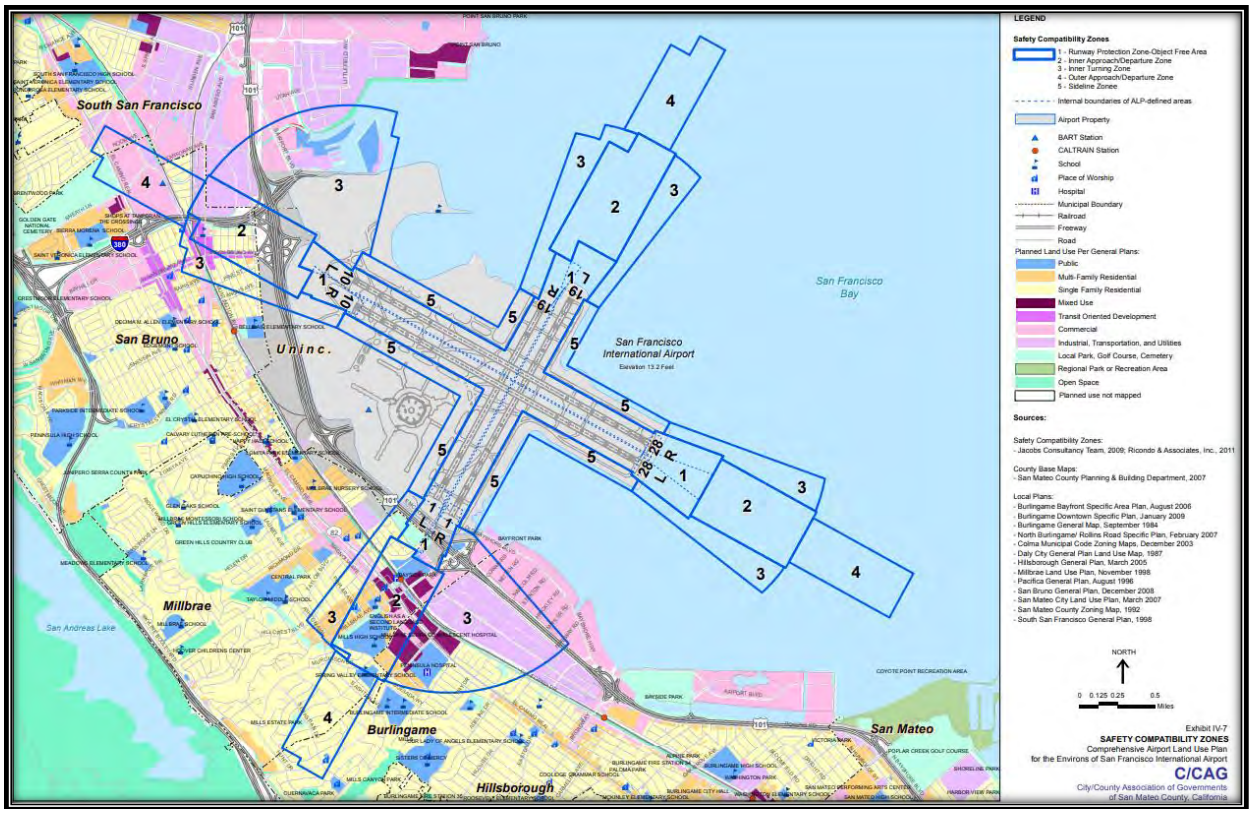


Figure 17 – Safety Compatibility Zones

Shown in ***Figure 18***, the proposed Biosafety Level 2 R & D buildings are located within Zone 4. "Zone 4 - Outer Approach/Departure Zone (OADZ): Zone 4, the OADZ, extends along the extended runway centerline immediately beyond the IADZ. It is subject to overflights of aircraft on approach and straight-out departures. At SFO, the OADZ off the west end of Runways 10R-28L and 10L-28R is overflown by a high proportion of departures using Runways 28L and 28R, especially long-haul departures by heavy, wide-body aircraft."[1]

Figure 19 displays the Incompatibile and Avoid Land Use Criteria for Zone 4. Biosafety Level 3 and 4 facilities are Incompatibile within Zone 4. "Biosafety Level 3 and 4 facilities: Medical and biological research facilities involving the storage and processing of extremely toxic or infectious agents ***(Figure 20***). See Policy SP-3 for additional detail."[1]

Figure 21 displays the SP-3 Hazardous Uses definitions. Biosafety Level 2 practices, equipment, and facility design and construction are applicable to clinical, diagnostic, teaching, and other laboratories in which work is done with the broad spectrum of indigenous moderate-risk agents that are present in the communityand associated with human disease of varying severity. **<u>The proposed R & D facilities are Biosafety Level 2.</u>**

[1] Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport

Figure 18 – Study Area with Safety Compatibility Zones

Table IV-2 (1 of 2) Safety Compatibility Criteria		
	LAND USE CRITERIA	
ZONE	INCOMPATIBLE[1]	AVOID[1]
Zone 1: Runway Protection Zone and Object Free Area (RPZ-OFA)		
	All new structures[3] Places of assembly not in structures Hazardous uses[2] Critical public utilities[2]	Nonresidential uses except very low intensity uses[4] in the "controlled activity area."[2]
Zone 2: Inner Approach/Departure Zone (IADZ)		
	Children's schools[2] Large child day care centers and noncommercial employer-sponsored centers ancillary to a place of business[2] Hospitals, nursing homes Hazardous uses[2] Critical public utilities[2] Theaters, meeting halls, places of assembly seating more than 300 people Stadiums, arenas	---
Zone 3: Inner Turning Zone (ITZ)		
	Biosafety Level 3 and 4 facilities[2] Children's schools[2] Large child day care centers[2] Hospitals, nursing homes Stadiums, arenas	Hazardous uses other than Biosafety Level 3 and 4 facilities[2] Critical public utilities[2]
Zone 4: Outer Approach/Departure Zone (OADZ)		
	Biosafety Level 3 and 4 facilities[2] Children's schools[2] Large child day care centers[2] Hospitals, nursing homes Stadiums, arenas	Hazardous uses other than Biosafety Level 3 and 4 facilities[2] Critical public utilities[2]

Figure 19 – Land Use Criteria

Table IV-2 (2 of 2) Safety Compatibility Criteria

Notes:

1/ *Avoid:* Use is not fully compatible and should not be permitted unless no feasible alternative is available. Where use is allowed, habitable structures shall be provided with at least 50 percent more exits than required by applicable codes. Where the 50-percent factor results in a fraction, the number of additional exits shall be rounded to the next highest whole number.

Incompatible Use is not compatible in the indicated zones and cannot be permitted.

2/ Definitions

- *Biosafety Level 3 and 4 facilities:* Medical and biological research facilities involving the storage and processing of extremely toxic or infectious agents. See Policy SP-3 for additional detail.
- *Children's schools:* Public and private schools serving preschool through grade 12, excluding commercial services.
- *Controlled Activity Area: The lateral edges of the RPZ, outside the Runway Safety Area (RSA) and the extension of the RSA, which extends to the outer edge of the RPZ. See FAA Advisory Circular 150/5300-13, Airport Design, Section 212a.(1)(b).*
- *Critical public utilities:* Facilities that, if disabled by an aircraft accident, could lead to public safety or health emergencies. They include the following: electrical power generation plants, electrical substations, wastewater treatment plants, and public water treatment facilities.
- *Hazardous uses:* Uses involving the manufacture, storage, or processing of flammable, explosive ,or toxic materials that would substantially aggravate the consequences of an aircraft accident. See Policy SP-3 for additional detail.
- *Large child day care centers:* Commercial facilities defined in accordance with Health and Safety Code, Section 1596.70, et seq., and licensed to serve 15 or more children. Family day care homes and noncommercial employer-sponsored facilities ancillary to place of business are allowed.

3/ Structures serving specific aeronautical functions are allowed, in compliance with applicable FAA design standards.

4/ Examples include parking lots and outdoor equipment storage.

SOURCE: Ricondo & Associates, Inc., June 2012.
PREPARED BY: Ricondo & Associates, Inc., June 2012.

Figure 20 – Safety Compatibility Criteria

SP-3 HAZARDOUS USES

Hazardous uses, facilities involving the manufacture, processing, or storage of hazardous materials, can pose serious risks to the public in case of aircraft accidents. Hazardous materials of particular concern in this ALUCP, and which are covered by the safety compatibility criteria in Table IV-2, are the following:

A. **Aboveground fuel storage** — This includes storage tanks with capacities greater than 10,000 gallons of any substance containing at least 5 percent petroleum.[11] Project sponsors must provide evidence of compliance with all applicable regulations prior to the issuance of development permits.

B. **Facilities where toxic substances are manufactured, processed or stored** — Proposed land use projects involving the manufacture or storage of toxic substances may be allowed if the amounts of the substances do not exceed the threshold planning quantities for hazardous and extremely hazardous substances specified by the EPA.[12]

C. **Explosives and fireworks manufacturing and storage** — Proposed land use projects involving the manufacture or storage of explosive materials may be allowed in safety zones only in compliance with the applicable regulations of the California Division of Occupational Safety and Health (Section 5252, Table EX-1). Project sponsors must provide evidence of compliance with applicable state regulations prior to the issuance of any development permits.[13]

D. **Medical and biological research facilities handling highly toxic or infectious agents** — These facilities are classified by "Biosafety Levels."[14] Biosafety Level 1 does not involve hazardous materials and is not subject to the restrictions on hazardous uses in Table IV-2. Definitions of the other three biosafety levels are quoted from *Biosafety in Microbiological and Biomedical Laboratories*, below.[15]

   a. Biosafety Level 2 practices, equipment, and facility design and construction are applicable to clinical, diagnostic, teaching, and other laboratories in which work is done with the broad spectrum of indigenous moderate-risk agents that are present in the community and associated with human disease of varying severity.

   b. Biosafety Level 3 practices, safety equipment, and facility design and construction are applicable to clinical, diagnostic, teaching, research, or production facilities in which work is done with indigenous or exotic agents with a potential for respiratory transmission, and which may cause serious and potentially lethal infection.

   c. Biosafety Level 4 practices, safety equipment, and facility design and construction are applicable for work with dangerous and exotic agents that pose a high individual risk of life-threatening disease, which may be transmitted via the aerosol route and for which there is no available vaccine or therapy.

Figure 21 – SP-3 Hazardous Uses

WAC Conclusion: Accoding to Dr. Kinkead Reiling, CEO and Founder of Bonneville Labs (see Attachment A) "The lowest level 1 (BSL-1) precautions consist of regular hand-washing and minimal personal protective equipment. These types of laboratories are ubiquitous in industry and are found in teaching setting such as high schools and colleges. The second lowest level (BSL-2) precautions consist of good laboratory practices and training, restricted lab access, decontamination practices, and protective measures such as the use of biosafety cabinets, gloves, lab coat, and safety glasses to allow the handling of generally treatable human diseases; examples could include Hepatitis A, B, and C, and Salmonella. Numerous laboratories throughout the bay area and country safely operate Biosafety Level 2 (BSL-2) facilities for research and development purposes.

In fact, the low-level risk to the community and public from a BSL-1 or BSL-2 research laboratory is not widely different, in that the organism handled in either one of them would not cause harm above organisms already found in the community, are generally treatable, and the robust facility, engineering, biosafety practices and security control measures necessary to effectively contain them are not highly susceptible to human error. Illness and infections spreading into communities surrounding a BSL-1 or BSL-2 lab are generally unheard of because research on high-risk agents and pathogens can only be performed in BSL-3 or 4 laboratories. While serving the health and well-being of our community through research to prevent disease, these labs do not pose high levels of risk by adhering to all relevant biosecurity and safety standards required by law."

Therefore, the difference between BSL-1 and BSL-2 are minimal, and the restrtictions in Safety Compatibility Zone 4 at SFO should not restrict the use of BSL-2. Only Biosafety Level 3 and 4 facilities are stated as being incompatible within Zone 4.

WAC Summary

The proposed 155' AMSL R & D 6-Story Buildings, and the proposed 132' AMSL Residential Building will not exceed the SFO Part 77 Civil Airport Imaginary Surfaces, SFO TERPs Surfaces, or SFO OEI Surfaces.

The WAC technical analysis revealed:

- ***An analysis of CFR Part 77 Notice Requirements was conducted and it was determined that the proposed project would require formal submission to the FAA.***

- ***The majority of the study area is located within the 163' Above Mean Sea Level (AMSL) Horizontal Surface for SFO. A small portion of the proposed residential building is located within the Conical Surface for SFO. This Conical Surface has an increasing slope of 20:1.***

- ***The maximum height over the study area, without affecting IAP to SFO, is approximately 385' AMSL to the SE and approximately 415' AMSL to the NW.***

- ***The maximum height over the study area, without affecting Circle-to-Land to SFO, is 660' AMSL.***

- ***The maximum height over the study area, without affecting the VFR Traffic Pattern to SFO is 363' AMSL.***

- ***The maximum height over the study area, without affecting the RWY 28R Departure ICA is approximately 247' AMSL to the SE and approximately 263' AMSL to the NW.***

- ***The proposed 155' AMSL R & D 6-Story Buildings, and the proposed 132' AMSL Residential Building will not exceed the SFO OEI Maximum Heights.***

- ***Accoding to Dr. Kinkead Reiling, CEO and Founder of Bonneville Labs (see Attachment A), the difference between BSL-1 and BSL-2 are minimal, and the restrtictions in Safety Compatibility Zone 4 at SFO should not restrict the use of BSL-2. Only Biosafety Level 3 and 4 facilities are stated as being incompatible within Zone 4.***

Attachment A

BONNEVILLE
LABS

BV

Tom Williams, City Manager
Darcy Smith, Community Development Director
City of Millbrae
621 Magnolia Ave
Millbrae, CA 94030

My name is Dr. Kinkead Reiling. I am the founder of Bonneville Labs, a bio-entrepreneur, and graduate of UCSF. I have been a scientist, entrepreneur and am now a co-working laboratory operator all focused on research and innovation for over 25 years. At my current company, we support over 20 innovative bio-based companies across the bay area. Given the breadth of companies that I have seen over this time, I feel that I am uniquely positioned to comment on need for and relative safety of biolabs in the bay area.

Life science entrepreneurs and scientists need access to high quality laboratory space to handle biological samples safely and effectively as they perform the research critical to sustaining innovation in the industry. Bio-labs are designed to meet stringent safety requirements and the level of containment ranges from the lowest level 1 (BSL-1) to the highest at level 4 (BSL-4). My current laboratories support research up to BSL-2 thus enabling work on topics from disease to climate change.

The lowest level 1 (BSL-1) precautions consist of regular hand-washing and minimal personal protective equipment. These types of laboratories are ubiquitous in industry and are found in teaching setting such as high schools and colleges. The second lowest level (BSL-2) precautions consist of good laboratory practices and training, restricted lab access, decontamination practices, and protective measures such as the use of biosafety cabinets, gloves, lab coat, and safety glasses to allow the handling of generally treatable human diseases; examples could include Hepatitis A, B, and C, and Salmonella. Numerous laboratories throughout the bay area and country safely operate Biosafety Level 2 (BSL-2) facilities for research and development purposes.

In fact, the low-level risk to the community and public from a BSL-1 or BSL-2 research laboratory is not widely different, in that the organism handled in either one of them would not cause harm above organisms already found in the community, are generally treatable, and the robust facility, engineering, biosafety practices and security control measures necessary to effectively contain them are not highly susceptible to human error. Illness and infections spreading into communities surrounding a BSL-1 or BSL-2 lab are generally unheard of because research on high-risk agents and pathogens can only be performed in BSL-3 or 4 laboratories. While serving the health and well-being of our community through research to prevent disease, these labs do not pose high levels of risk by adhering to all relevant biosecurity and safety standards required by law.

Simply reflect on the year 2020, it is clear that there is an ongoing need for BSL-1 and BSL-2 lab space in the US for the purpose of performing research on the biology of disease-causing agents.

To conclude, the need for laboratories to safely and effectively research and prevent disease is increasing with great speed. The low-level risk of BSL-2 labs are on par with BSL-1 as they are limited to handling lower-risk organisms that in many cases are already present and generally controlled within our communities. I hope that the City of Millbrae will recognize the low-level risk of BSL-2 labs and be supportive of the life science industry that is working diligently to use biotechnology to address the pressing issues of our time ranging from illness to climate change.

Sincerely,
Dr. Reiling
CEO and Founder, Bonneville Labs